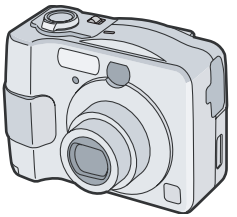
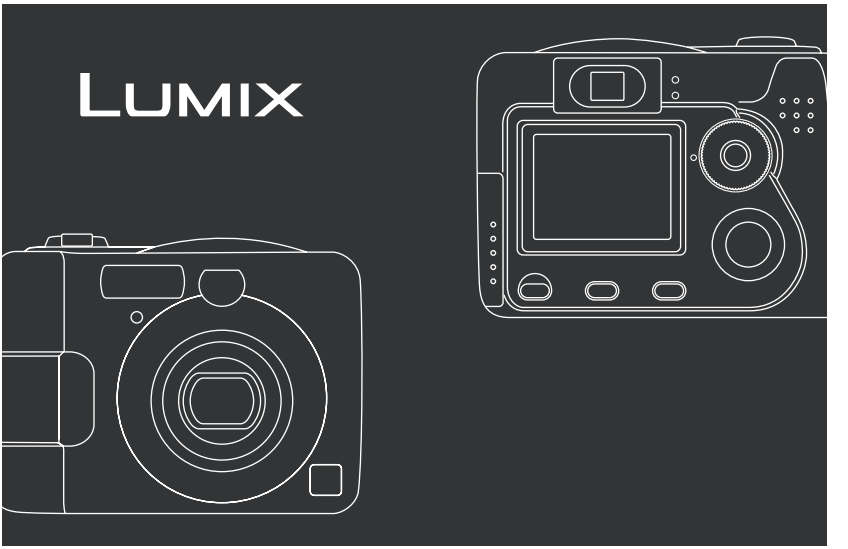
Panasonic

Operating Instructions

Digital Camera



Model No. DMC-LC70GN
DMC-LC50GN



Before use, please read these instructions completely.

LEICA
DC VARIO-ELMARIT

VQT0K19

Dear Customer,
We would like to take this opportunity to thank you for purchasing this Panasonic Digital Camera. Please read these Operating Instructions carefully and keep them handy for future reference.

Information for Your Safety

WARNING
TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE ONLY THE RECOMMENDED ACCESSORIES AND DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE. DO NOT REMOVE THE COVER (OR BACK); THERE ARE NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

Carefully observe copyright laws. Recording of pre-recorded tapes or discs or other published or broadcast material for purposes other than your own private use may infringe copyright laws. Even for the purpose of private use, recording of certain material may be restricted.

- Please note that the actual controls and components, menu items, etc. of your Digital Camera may look somewhat different from those shown in the illustrations in these Operating Instructions.
- SD Logo is a trademark.
- Other names, company names, and product names printed in these instructions are trademarks or registered trademarks of the companies concerned.
- The screens in these instructions are displayed as illustrated in DMC-LC70.

IF THE POWER CORD OF THIS EQUIPMENT IS DAMAGED, IT MUST BE REPLACED WITH AN ELECTRICALLY APPROVED POWER CORD.

THE SOCKET OUTLET SHALL BE INSTALLED NEAR THE EQUIPMENT AND SHALL BE EASILY ACCESSIBLE.

CAUTION
Danger of explosion if batteries are incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Extremely high precision technology is employed to produce the LCD monitor screen. The result is more than 99.99% effective pixels with a mere 0.01% of the pixels inactive or always lit. However, this is not a malfunction and does not affect the recorded pictures.

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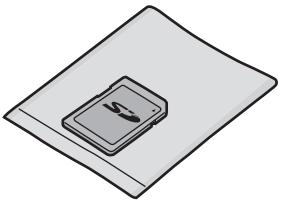
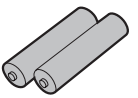
Standard Accessories

Before using your camera, check the contents.

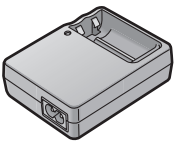
■ **SD Memory Card (16 MB)**
RP-SD016B
(In the text, it is indicated as “Card”)



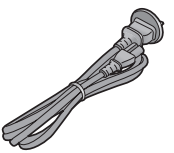
■ **Batteries**
AA Ni-MH (nickel-metal hydride)



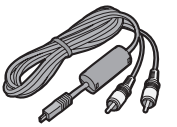
■ **Battery Charger**
DE-894A



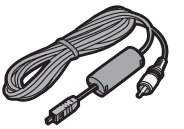
■ **AC Cable**
K2CJ2DA00002 or K2CJ2DA00011



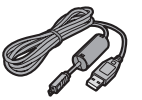
■ **AV Cable** (DMC-LC70)
K1HB08CD0003



■ **Video Cable** (DMC-LC50)
K1HB08CD0006

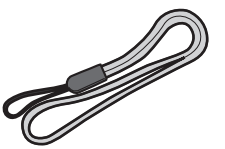


■ **USB Connection Cable**
K1HB08CD0008

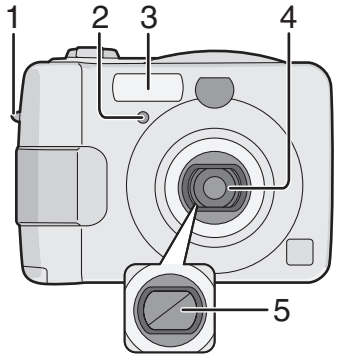


■ **CD-ROM**

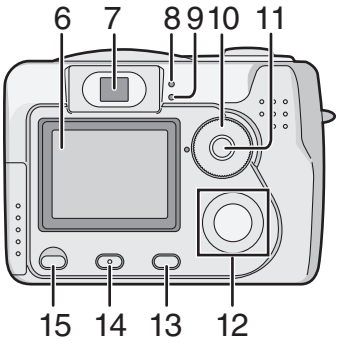
■ **Strap**
VFC4057



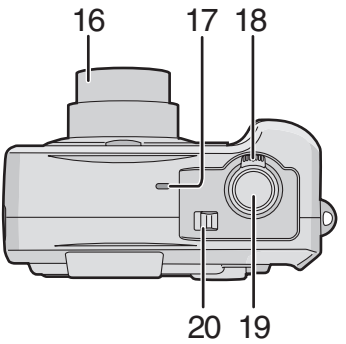
Names of the Components



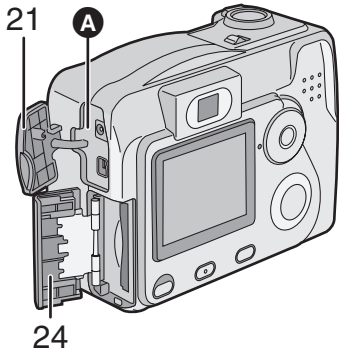
1 Strap Eyelet
2 Self-timer Indicator (P38)
3 Flash
4 Lens
5 Lens Cover



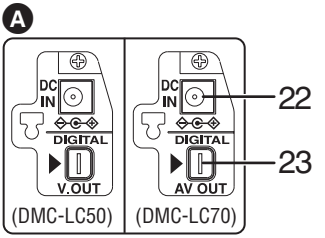
6 LCD Monitor (P23, 88)
7 Optical Finder
8 Power Indicator (P26)
9 Status Indicator (P17, 26, 35)
10 Mode Dial (refer to next page)
11 Single/Burst Mode Button (P39)
12 Cursor buttons
◄/Self-timer Button (P38)
▼/REVIEW/SET Button (P32)
►/Flash Mode Button (P34)
▲/Exposure Compensation (P36)/ Auto Bracket (P37)/White Balance Fine Adjustment (P52) Button
13 [MENU] Button (P20)
14 [DISPLAY] Button (P23, 68)
15 Delete (P43)/[FOCUS] (P55) Button (DMC-LC70)
Delete Button (P43) (DMC-LC50)



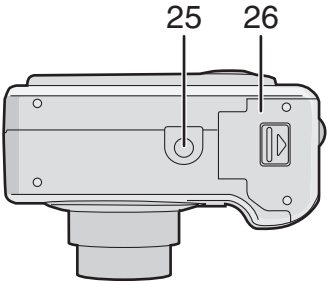
16 Lens Barrel (P27)
17 Microphone (P49, 55) (DMC-LC70)
18 Zoom Lever (P33, 57)
19 Shutter Button (P25)
20 Power Switch (P25)



21 Terminal Cover



22 [DC IN] Socket
23 [DIGITAL] (P82, 84) / [AV OUT] (P79) Socket (DMC-LC70)
[DIGITAL] (P82, 84) / [V.OUT] (P79) Socket (DMC-LC50)
24 Card Door (P18)



25 Tripod Receptacle
26 Battery Door (P16)

The Mode Dial

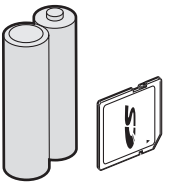
Select the desired recording mode for the scene, then turn the mode dial to set to the mark of the mode.

: Normal Picture mode (P25)
: Economy mode (P45)
: Macro mode (P46)
: Portrait mode (P47)
: Landscape mode (P47)
: Night portrait mode (P48)
: Motion image mode (P49)
: Simple mode (P29)
: Playback mode (P40)

Quick Guide

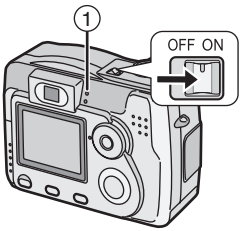
- This is the summary of operations for recording on the camera.
- Refer to the corresponding pages for each operation in detail.

1 Check the batteries and the card.



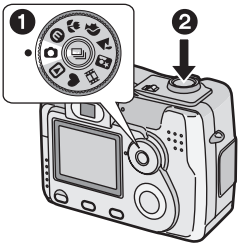
- Insert the supplied batteries or new batteries. (P16)
  (When using the Ni-MH (nickel-metal hydride) batteries, insert the batteries after charge.)
- Insert the Memory Card. (P18)
- Read page 11 for the batteries.

2 Turn the camera on.



- The power indicator ① blinks.
  - When the card is not inserted.
  - When there is no remaining capacity and time on the card.
  - When the remaining power is low (blinking slowly).

3 Take pictures.



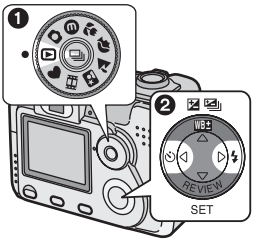
- Set the clock. (P19)

❶ Set the mode dial to the Normal recording mode [ ].

❷ Press the shutter button and take a picture. (P25)

- Do not cover the photo flash with your finger or other items. (P26)

4 Play back the recorded picture.



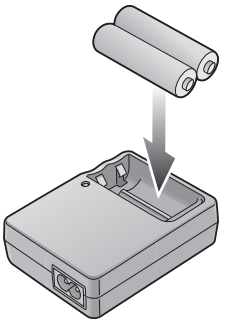
❶ Set the mode dial to the Playback mode [ ].

❷ Press ◄ or ►, and select the desired picture. (P40)

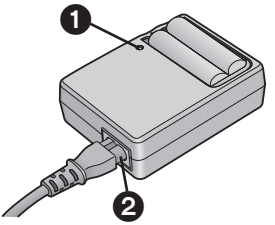
Charging the Batteries

• Charge the batteries before use (when using Ni-MH batteries).

1 Insert the batteries into the battery charger.



2 Connect the AC cable to the charger and AC socket.



• The charge lamp ❶ lights and charge starts.
• The AC cable does not fit entirely into the socket. A gap will remains shown ❷.

3 Charge is completed when the charge lamp is no longer illuminated.

• Charging takes in about 6 hours.

• Confirm that batteries are inserted properly.
• Disconnect the charger from the electrical outlet after the charging is completed.
• Use Panasonic AA Ni-MH batteries (nickel-metal hydride) (supplied).

■ Environment/charge error

• Charge in a place with a surrounding temperature of 0 – 40°C (also temperature of the battery).
• When charging starts, the charge lamp lights.
If after charging starts the charge lamp blinks, it indicates a charge error.
In this case, remove the charger from the electrical outlet, take out batteries, check whether the surrounding temperature or the batteries are too hot or cold, and charge again. An error cannot be cancelled by turning the power off/on. If after charging again the charge lamp still blinks, consult your nearest servicentre.

About the Battery

■ Recommended batteries

Use Panasonic AA Ni-MH batteries (nickel-metal hydride) (supplied) or AA Alkaline batteries. (We recommend that you use Panasonic batteries)

- **The performance of the batteries may vary depending on brand or storage terms/condition of the battery. It may cause malfunction or the available recording time may become shorter.**
- As the ambient temperature decreases, the battery performance and capacity may temporarily decrease. In such cases, remove the batteries, warming them in your pocket.
- The battery indicator may not be displayed correctly depending on the temperature or other conditions. Battery may be empty without indication.
- We recommend turning the camera off frequently while recording to maintain the power of the battery for a long time.
- When using the camera outdoors, we recommend using new Alkaline batteries. If you will be using the camera for a long period of time, using rechargeable Ni-MH batteries is more practical.
- The exhausted batteries may recover the performance when they are left for some period of time. However, they cannot be used for a long time. Be sure to replace with new batteries.

Batteries that should not be used

Manganese batteries	Nickel batteries
Ni-cd batteries	Lithium batteries

- If the batteries listed above are used, improper operation can result and the following malfunctions can occur;
  - Remaining battery time may not be displayed accurately.
  - Camera may turn off prematurely.
  - Data written to Memory Card can be damaged resulting in the loss of photos.

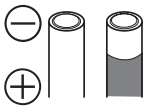
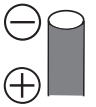
Nickel Manganese batteries

The remaining battery life of the Nickel Manganese battery may be displayed as full on the battery indicator [ ] because of its characteristics even if it is considerably consumed. Moreover, the camera may be turned off with the indication on the battery indicator full [ ] without warning. This is not a malfunction.

■ Batteries that cannot be used

The following batteries cannot be used.

- Batteries where part or their entire outer covering jacket has been removed or partially peeled away.
- Batteries that have “flattened” ends that would prevent a proper connection from being made with internal battery contacts.

• All or part of the seal of batteries are peeled off 	• ⊖ polarity is flat 

■ Proper Care and Handling of the Batteries

If you mishandle the batteries, leakage, generation of heat and fire or explosion may occur. Observe the following cautions;

- Do not attempt to disassemble the battery or subject the battery to any extreme mechanical abuse.
- Do not heat or throw into the fire.
- Do not allow the battery contacts to touch metal objects.
- Do not subject the battery, battery connectors, or the camera to any direct moisture, especially salt water. This can cause corrosion of the metal surfaces.
- Do not peel off or remove the outer battery covering.
- Do not throw the batteries.
- Do not use batteries that appear mechanically damaged, swollen or show signs of leakage.
- Do not store batteries in high humidity or high temperature environments.
- Keep batteries away from small children.
- Do not install batteries backwards (reverse polarity). Serious damage or injury can result.
- When you replace 2 batteries, use two of the same type.
- All batteries should be of the same brand, size, capacity. Avoid mixing batteries.
- If you will not be using the camera for a long time, remove the batteries.
- Following prolonged use, it is normal for the battery to be warm.
- As the ambient temperature decreases, the battery capacity and performance will decrease. This is normal. In such cases, remove the batteries and warm them in your pocket. Take special care not to allow the contacts to come into contact with metal objects in your pocket.
- If oxidation or any foreign substance is found on the battery contacts it could prevent the battery from making a good electrical contact. Operation could become intermittent. If this occurs, clean the battery contact with an ink eraser.

If any leakage from the battery is noted, avoid direct skin contact. Remove the battery and clean as much of the foreign substance as possible. Contact your local service centre for assistance if necessary.

Ni-MH Battery (Nickel Metal Hydride)

The battery charger should only be used with the Ni-MH batteries. Do not attempt to charge non-rechargeable batteries. Please be aware of the following issues;

- If any oxidation or foreign substance is found on the battery contacts, the battery may not be charged correctly. Battery contacts can be cleaned with a soft cloth or ink eraser.
- Newly purchased rechargeable batteries or those which have not been used for a long period of time may not reach full capacity after one charge. The overall performance will increase after 2–3 discharge/charge cycles.
- Rechargeable batteries should be used to the point when the camera stops working. They should be recharged as soon as possible. Premature charging can cause “memory effect”, whereby the overall operating time can be decreased.
- Even during storage, rechargeable batteries will naturally discharge. We suggest charging before each use.
- Once batteries have reached full charge, avoid over charging them.
- Do not peel off or damage the covered seal.
- Read the Operating Instructions for the battery charger.

Ni-MH batteries have a limited life. The battery power decreases gradually over time. If available time seems much shorter, purchase new batteries.

- The battery’s life differs depending on the condition stored or used or environment.

Battery indicator

The remaining battery power is displayed on the LCD monitor. (This is not displayed when using AC adaptor (optional, DMW-AC2).)

: The battery power is sufficient

: The remaining power is low

: There is little remaining power

(Blinks in red): Replace the batteries

When using new Ni-MH batteries, the battery indicator may not be displayed correctly because of the characteristic of the batteries, not because of a malfunction. If you repeatedly discharge and charge the batteries fully, the battery indicator will be displayed correctly.

- The battery indicator may not be displayed correctly depending on the temperature or other conditions. As a result, even if the battery indicator is not empty, the power may be turned off. This is not a malfunction.

- Even if the battery power depletes when leaving them unused for a while, the battery power may recover. However, they will not be usable, so replace them with new ones once the battery power depletes.

About the Battery Consumption

Recordable number under CIPA Standards

Batteries	Recordable number
Fully charged Panasonic Ni-MH (nickel-metal hydride) batteries (supplied)	Approx. 320 still pictures
Panasonic Alkaline batteries	Approx. 160 still pictures

Measured under the following conditions:
- Temperature: 23°C / Humidity: 50%, LCD monitor is on
- Using the supplied SD Memory Card
- Starting recording 30 seconds after the camera is turned on.
- Recording once every 30 seconds, flash every other recording.
- Activating zoom from Tele to Wide and vice versa in every recording.
- Turning the camera off per 10 recordings/Leave the camera until the battery is cooled down.

Recordable number under low temperature
(Temperature: 0°C / Other recording conditions are the same as specified in CIPA Standards)

Batteries	Recordable number
Fully charged Panasonic Ni-MH (nickel-metal hydride) batteries (supplied)	Approx. 300 still pictures
Panasonic Alkaline batteries	Approx. 40 still pictures

- Please note that the performance and capacity of the alkaline battery is significantly decreased in low temperature conditions.

Recordable number when the LCD monitor is turned off

(The LCD monitor is off / Other recording conditions are the same as specified in CIPA Standards)

Batteries	Recordable number
Fully charged Panasonic Ni-MH (nickel-metal hydride) batteries (supplied)	Approx. 850 still pictures
Panasonic Alkaline batteries	Approx. 400 still pictures

- The remaining battery life lasts longer when you use the camera with the LCD monitor turned off.

Continuous playback time

Batteries	Continuous playback time
Fully charged Panasonic Ni-MH (nickel-metal hydride) batteries (supplied)	Approx. 340 min.
Panasonic Alkaline batteries	Approx. 280 min.

◇***Suggestions/Tips*** ◇

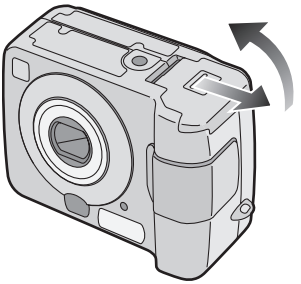
- The numbers and times shown in the table may vary depending on the condition.
- Recordable number/playback time varies depending on the batteries used.
- We recommend turning the camera off frequently while recording to maintain the power of the battery for a long time.
- CIPA is an abbreviation for Camera & Imaging Products Association.

Inserting/Removing the Batteries

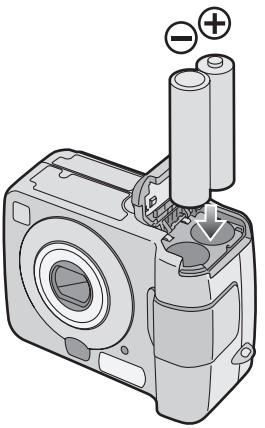
Preparation

- Check that the camera is turned off and that the lens is retracted.
- Use AA Ni-MH batteries (nickel-metal hydride) or AA Alkaline batteries.

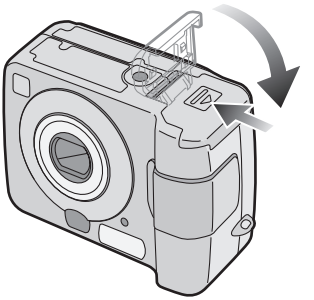
1 Slide the door in the direction of the arrow to open the battery door.



2 Insert the batteries observing the direction of the ⊕ and ⊖ polarities.



3 Slide the door in the direction of the arrow to close the battery door.



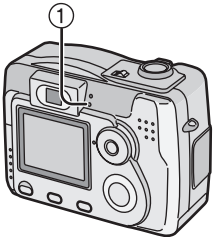
◇***Suggestions/Tips*** ◇

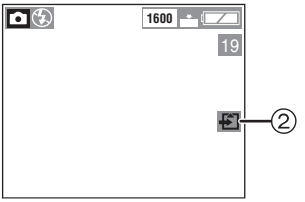
- If you will not be using the camera for a long time, remove the batteries.
- After the fully charged batteries or new batteries have been inserted for more than 3 hours, the clock setting is stored (in the camera) for 3 months after the batteries are removed. (The time may be shorter if the batteries are not charged sufficiently.)
  If more than 3 months has passed, the clock setting will be lost. In this case, set the clock again. (P19)
- **Do not remove the card or the batteries when the card is being accessed. (P17)**
- **Be sure to remove the batteries after the power indicator is turned off. Otherwise, the setting may be cleared.**

About the Card

■ Access to the card

While the card is being accessed, the status indicator ① and card access indication ② light.





When the status indicator ① and card access indication ② light, do not:

- turn the camera off.
- remove the batteries or the card.
- do not remove the AC Adaptor (optional, DMW-AC2).

The card and the card contents may be damaged and the camera may not operate normally.

It is possible that data stored on the card can be damaged due to accidental erasure, static electricity, electrical noise or a defective card. We recommend storing precious data to your PC's hard drive. (P82)

■ SD Memory Card (supplied) and MultiMediaCard (optional)

The SD Memory Card and MultiMediaCard are small, lightweight, removable external memory cards. The reading/writing speed of an SD Memory Card is fast. The SD Memory Card is equipped with a Write-Protect switch that can inhibit writing and formatting a card. (When the switch is slid to the [LOCK] side, it is not possible to write or delete data on the card and format it. When the switch is unlocked, these functions become available.)

SD Memory Card

MultiMediaCard

◇***Suggestions/Tips***◇

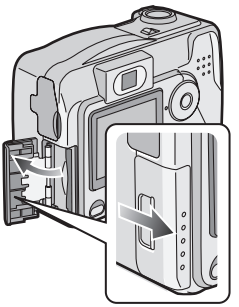
- The reading/writing speed of a MultiMediaCard is slower than an SD Memory Card. When a MultiMediaCard is used, the performance of certain features may be slightly slower than advertised.
- After recording motion images using the MultiMediaCard, the status indicator and card access indication may appear for a while, but this is not a malfunction.
- Keep the Memory Card out of reach of children to prevent swallowing.

Inserting/Removing the Card

Preparation

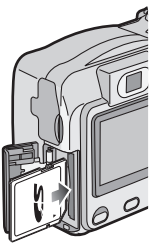
- Check that the camera is turned off and that the lens is retracted.

1 Slide the door in the direction of the arrow to open the card door.



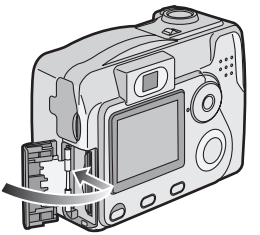
- The card may be damaged if it is removed while the camera is on.
- We recommend using Panasonic's SD Memory Card. (Use only the genuine card.)

2 Insert the card all the way in until it clicks.



- Insert the card, pressing gently until it locks in place. If the card will not insert freely, it may be reversed. Do not force the card.
- Do not touch the connection terminals on the back side of the card.
- The card may be damaged if it is not fully inserted.

3 Close the card door.



- If the card door cannot be completely closed, remove the card and insert it again.

■ Removing the Card

When removing the card, press the card until it clicks and then pull it out straight from the camera.

◇***Suggestions/Tips*** ◇

- **Do not remove the card when the card is being accessed. (P17)**

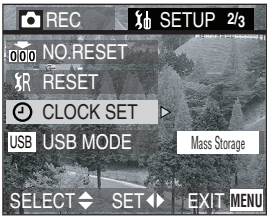
Setting the Date/Time (Clock Set)

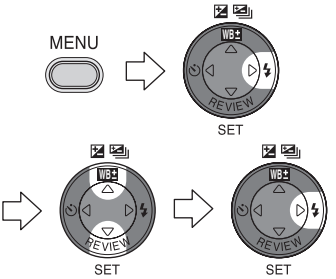
■ Initial setting

The clock is not set when the camera is shipped. When you turn the camera on, the clock setting screen appears.

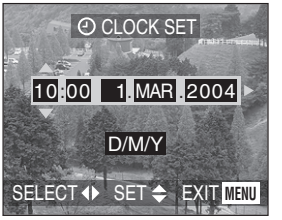
When pressing the [MENU] button, the screen shown in step 2 appears. Set the clock on it.

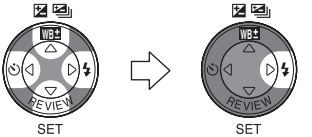
1 Select [CLOCK SET] from the [SETUP] menu. (P20)





2 Set date, time and order.





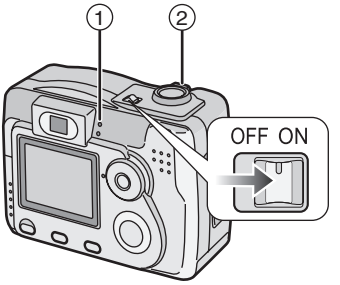
- ◄/►: Select the desired item.
- ▲/▼: Set date and time.
- ▲/▼: Select [D/M/Y], [M/D/Y] or [Y/M/D].
- Close the menu by pressing the [MENU] button 2 times after finishing the setting.
- Check if the clock setting is correct, after turning the camera off and on.
- You can set the year from 2000 to 2099. The 24-hour system is used.

■ Date Printing

- You can set the date printing in DPOF print setting on this camera. (P68)
- Using the supplied software, [SD Viewer for DSC], it is possible to have the date imprinted on the picture. For details, please read the supplied operating instructions for PC connection.
- When you go to a photo studio for printing, be sure to order the printing of the date. For further information, ask the photo studio. Depending on the studio, it may not be possible to print the date.

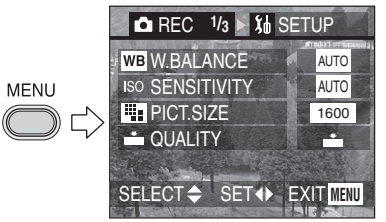
Setup Menu

1 Turn the camera on.

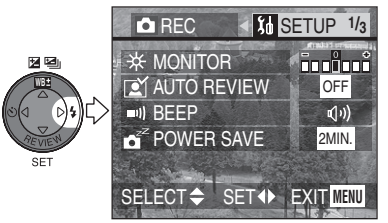


• The power indicator ① lights.

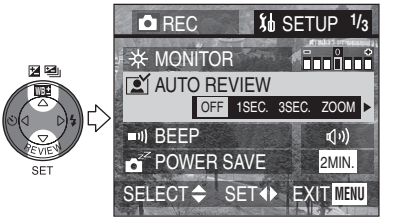
2 Press the [MENU] button.



3 Select the [SETUP] Menu.

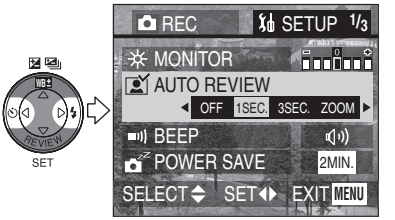


4 Select the desired item.



• When rotating the zoom lever ② toward T, the page of the menu screen can be forwarded. (vice versa)

5 Set the desired value.



• Close the menu by pressing the [MENU] button after finishing the setting.

You can control the following items on [SETUP] Menu.

Menu	Functions
MONITOR	Adjust the brightness of the LCD monitor in 7 steps.
AUTO REVIEW (Recording mode only)	• [OFF]: The recorded picture does not automatically appear. • [1SEC.]: The recorded picture automatically appears on the screen for about 1 second. • [3SEC.]: The recorded picture automatically appears on the screen for about 3 seconds. • [ZOOM]: The recorded picture automatically appears on the screen for about 1 second. Then it is enlarged 4 times and appears for about 1 second.This mode is useful to confirm the focus. • In Motion image mode [ ], auto review function is not activated. • When using burst mode or auto bracket, the auto review function works while recording the data into the card regardless of the setting on the auto review function. (The picture is not enlarged.) • When using pictures with audio, the auto review function works while recording the audio or the data into the card regardless of the setting on the auto review function. (The picture is not enlarged.) (DMC-LC70 only)
BEEP	Set to the volume of operational sound. • [ ]: The operational sound turns high. • [ ]: The operational sound turns low. • [ ]: The operational sound turns off. The operational sound setting is also reflected on Simple mode [ ].
POWER SAVE (Except for the Economy mode)	The remaining battery life is extended by turning the camera off automatically while camera is not used. • [1MIN.]/[2MIN.]/[5MIN.]/[10MIN.]: The camera is automatically turned off if it has not been used for a predetermined amount of time. (Press the shutter button or turn the camera off and on to cancel the power save mode.) • [OFF]: The camera is not automatically turned off. • When using the AC adaptor (optional, DMW-AC2)/ connecting to a PC or printer/recording motion images/ playing back motion images/during Slide Show, the power save mode is not activated.

Menu	Functions
ECONOMY (Economy mode only)	The remaining battery life is extended by turning the LCD monitor off automatically while camera is not used. You can set the condition to turn the LCD monitor off when the Economy mode is selected. (P45)
NO.RESET (Recording mode only)	Set this when you want to start the file number of the picture from 0001 on the next recording. (The folder number is updated, and the file number starts from 0001.) • The folder number can be assigned from 100 to 999. When the folder number reaches 999, it cannot be reset. We recommend formatting the card after saving the data on a PC or elsewhere (P78). • When you reset the formatted card or new card, the file number is reset and the confirmation screen appears. If you select [YES] on the screen, the folder number is also reset to 100. • The file number reset is also reflected on Simple mode [♥].
RESET (Recording mode only)	The camera is reset to the initial settings. However, the file number, the clock setting and the setting on Simple mode [♥] are not changed.
CLOCK SET	Change the date and time. (P19)
USB MODE	Set to the USB communication system. Set before connecting to a PC or a printer. (P80)
VIDEO OUT (Playback mode only)	• [NTSC]: Video output is set to NTSC system. • [PAL]: Video output is set to PAL system. (P79)
LANGUAGE	Set to the language on the menu screen from the following 7 languages. Set to the desired language with ◄/► and determine it with ▼. [ENGLISH]: English [DEUTSCH]: German [FRANÇAIS]: French [ESPAÑOL]: Spanish [ITALIANO]: Italian [中文]: Chinese (Simplified) [日本語]: Japanese • When you set to another language by mistake, select [ ] from the menu icons to set the desired language. • The language setting is also reflected on Simple mode [♥].

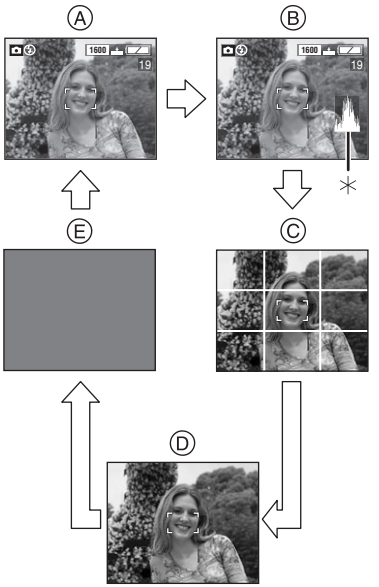
Using the LCD Monitor

■ Selecting the screen to be used

Press the [DISPLAY] button to switch to the screen to be used.

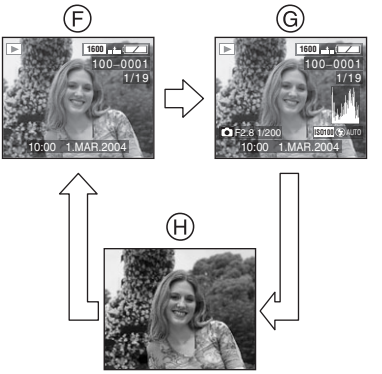
- The [DISPLAY] button is not activated when the menu screen appears. When you press the [DISPLAY] button in playback zoom or in multi playback, you can switch whether you use the LCD monitor or not.

In recording mode (P25)



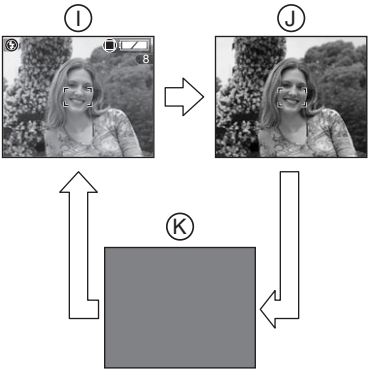
Ⓐ Display
Ⓑ Display with histogram (DMC-LC70 only)
Ⓒ Non-display (Recording guide line)
Ⓓ Non-display
Ⓔ LCD monitor is turned off
✳Histogram

In playback mode (P40)



Ⓕ Display
Ⓖ Display with recording information and histogram (DMC-LC70 only)
Ⓗ Non-display

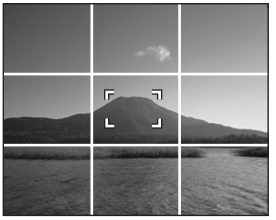
Recording in Simple mode (P29)



Ⓘ Display
Ⓙ Non-display
Ⓚ LCD monitor is turned off

■ Recording guide line

You can achieve balanced pictures by aligning the subject on the cross point of the horizontal and vertical guide lines. You can also take pictures easily by adjusting the horizon to the guide line.

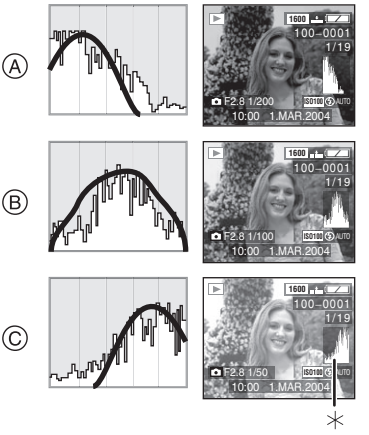


You can take pictures with well-designed composition by viewing the size and the balance of subjects.

■ About the Histogram (DMC-LC70 Only)

- A histogram is a graph that displays brightness along the horizontal axis (black to white) and the number of pixels at each brightness level on the vertical axis.
- It allows the camera user to easily check the way a picture is being exposed.
- When the values are concentrated to the left as Ⓐ, the picture is under exposed.
- When the values in the histogram are distributed as Ⓑ, the exposure is adequate and the brightness is well-balanced.
- When the values are concentrated to the right as Ⓒ, the picture is over exposed.

Example of histogram



Ⓐ Under Exposed
Ⓑ Properly Exposed
Ⓒ Over Exposed
✳Histogram

◇*Suggestions/Tips*◇

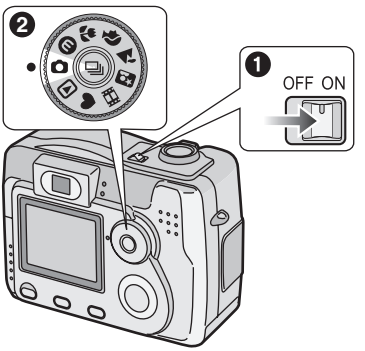
- **When the photo flash is activated or when you record pictures in dark places, the histogram turns yellow because the recorded picture and the histogram do not match each other.**
- The histogram in the recording mode is an approximation.
- The histogram does not appear when in Motion image mode [🎞], during multi playback and playback zoom.
- The histogram in recording and playback may not match each other.
- The histogram in this camera does not match the one displayed in image editing software on PC, etc.

Taking Pictures

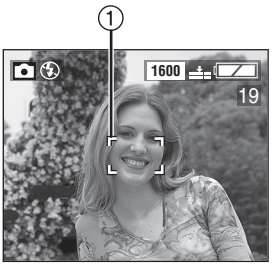
Preparation

- Insert the batteries. (P16)
- Insert the card. (P18)

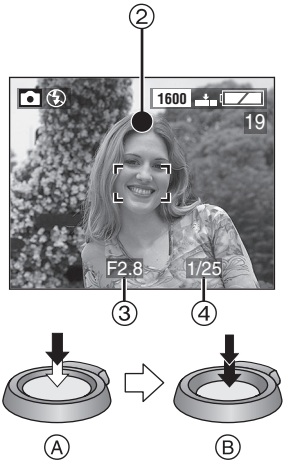
1 ❶ **Turn the camera on.**
❷ **Select Normal Picture mode [ ].**



2 **Aim the AF area ① to the point you want to focus.**



3 **Focus on the subject to take the picture.**

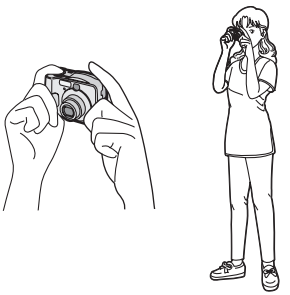


- Ⓐ: Press the shutter button halfway to focus.
- Ⓑ: Press the shutter button fully to take the picture.

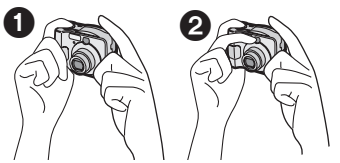
- The focus indication ② turns on, the AF area ① turns from white to green and then the aperture value ③ and the shutter speed ④ are displayed.
- The subject is not focused adequately when the focus indication ② blinks and the AF area ① turns red.
  Press the shutter button halfway and focus on the subject again.

■ Correct posture for taking good pictures

To take pictures without blurring:
- Hold the camera gently with both hands, keep arms stationary at your side and stand with your feet slightly apart.
- Check that the camera shake does not occur when pressing the shutter button halfway.
- After pressing the shutter button, keep the camera stationary until the picture appears on the screen.
  In the following cases, keep the camera stationary for a long time.
  – Slow sync./Red-eye reduction [ ] (P34)
  – In Night portrait mode [ ] (P48)

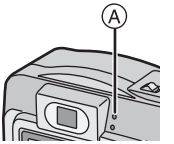


- Hold the camera firmly with your right hand.
- Do not cover the photo flash with your fingers or other items.



❶ Correct
❷ Incorrect
- Hold the lower left of the camera with your left hand.
- Do not cover the microphone with your fingers or other items. (DMC-LC70 only)
- Do not touch the lens barrel.

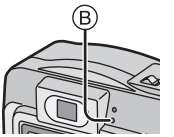
■ Power Indicator Ⓐ



Lit:
- When turning the camera on.

Blinking:
- When the battery is exhausted.

■ Status Indicator Ⓑ



Lit:
- When accessing the card.
- When the flash fires. (It lights when the shutter is pressed halfway.)
- When sending data to PC.

Blinking:
- When charging the flash.
- When setting the flash mode to Forced OFF [ ] and pressing the shutter halfway in dark places, the Status indicator blinks to warn of insufficient brightness. In this case, we recommend activating the flash or increasing the ISO sensitivity.
- When the card is not inserted.
- When there is no remaining capacity on the card.
- When the card is locked in the recording mode.
- While the focus is being adjusted or the focus is not properly adjusted.

Focusing

- You can focus on the subject up to a distance of 50 cm.
- If you press the shutter button fully without prefocusing, pictures may be blurry or unfocused.
- When the subject is focused, the camera beeps 2 times. If not, it beeps 4 times. Refer to P21 if you want to turn the operational sound off.
- In the following cases, the camera cannot focus on subjects properly in Normal Picture mode.
  - –When including both near and distant subjects in a scene.
  - –When there is dirt on the glass between the lens and the subject.
  - –When there are illuminated or glittering objects around the subject.
  - –When taking a picture in a dark place.
  - –When the subject moves fast.
  - –When the scene is poor in contrast.
  - –When jitter occurs.
  - –When recording a very bright subject.

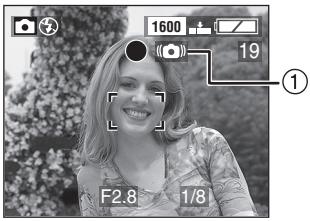
  We recommend taking pictures using AF/AE lock (P28) or prefocus (DMC-LC70 only) (P55).
- Even if the focus indication appears and the subject is focused, it is cancelled when you release the shutter button. Press the shutter button halfway again.

Exposure

- If the exposure is not adequate, the indication of the aperture value and the shutter speed on the screen turns red. (However, the aperture value and the shutter speed do not turn red when the flash is activated.)
- The brightness of the screen may differ from that of recorded pictures. In particular, when taking pictures in dark places with slow shutter, the subject looks dark on the screen, but the actual picture is bright.
- When most of the subjects in the screen are bright (e.g. blue sky on a clear day, snowy field, etc.), the recorded pictures may become dark. In this case, compensate the exposure. (P36)

Jitter (camera shake)

- When jitter could occur, the jitter alert ① appears.



- When the jitter alert appears, we recommend using a tripod. If you cannot use a tripod, be careful of how you hold the camera. (P26)
- Be careful of jittering when pressing the shutter button.

Care for the camera

- Check to make sure there is no stain or dirt on the lens.
- Do not touch the lens directly.
- Do not cause impact to the lens or lens barrel. (P7)
- When turning the camera on in the recording mode, the lens barrel comes out. Check to make sure there are no obstacles in front of the lens.
- Take care not to touch or stain the surface of the lens. When the lens becomes dirty or dust attaches to the lens, use a commercial blower brush to remove dust or dirt and wipe the lens with a dry, soft cloth. If you use solvents such as benzine, alcohol or thinner, the camera may be discoloured or broken.

- When using the camera in a sandy or dusty place, be careful not to let dirt, grit or seawater come into the camera.

■ AF/AE Lock (AF: Auto focus/ AE: Auto exposure)

When recording a picture of people with a composition such as in the above picture, you cannot focus on the subject because it is out of AF area in usual operation.

In this case,

1. Aim the AF area at the subject.
2. Press the shutter button halfway to fix the focus and the exposure.
   - When the subject is focused, the focus indication lights.
3. Keep pressing the shutter button halfway, move the camera as you compose the picture
4. Press the shutter button fully.

- You can repeatedly retry AF/AE lock before pressing the shutter button.

◇*Suggestions/Tips*◇

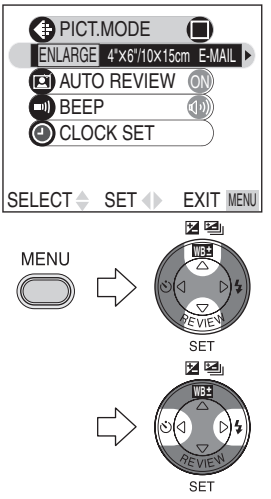
- **When brightness has changed due to the zoom or the movement of the camera, the lens may click and the picture on the screen may be drastically changed. However, the pictures are not affected.**
  The sound is caused by automatic adjustment of the aperture. It is not a malfunction.
- When pressing the shutter button, the screen may become bright or whitish for a moment. However, the recorded picture will not be influenced. This function make it easy to adjust the focus.
- We recommend setting the clock again before taking pictures. (P19)
- When the time for power save is set (P21), the camera is automatically turned off if you do not operate within the set time. When operating the camera again, press the shutter button or turn the camera off and on.
- When you use the optical finder, the actual recording range become wider than the viewable range of the viewfinder. This is caused by the difference of position of the optical finder and the lens. This is not a malfunction.
  We especially recommend checking the recording range when you use the LCD monitor.
  - When recording pictures within 1m of the subjects
  - In Macro Mode (P46)
  - When the digital zoom is activated. (P57)

Taking Pictures in Simple Mode

We recommend you use this mode when you ask someone to take a picture.
- Offering simplified menu for ease of use.
- The picture size is easy to select.
- The icons on the display are larger.

Preparation
- Set the mode dial to [♥]. (P8)

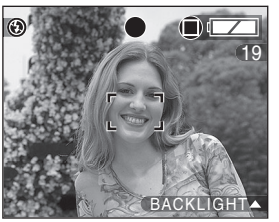
1 Select [PICT.MODE] and select [ENLARGE], [4″×6″/10×15cm] or [E-MAIL].



- [ENLARGE]:
  This selection is intended for situations when large printing is desired.
- [4″×6″/10×15cm]:
  This selection will offer an easy way to produce small “general purpose” prints.
- [E-MAIL]:
  This selection favours a smaller file size, optimized for home page and e-mail use.

2 Close the menu by pressing the [MENU] button after finishing the setting.

3 Take the picture.



■ Settings in Simple mode

[AUTO REVIEW] (Menu)
- [ON]: The recorded picture automatically appears on the screen for about 1 second.
- [OFF]: The recorded picture does not automatically appear.

[BEEP] (Menu)
- [ ]: The operational sound turns high.
- [ ]: The operational sound turns low.
- [ ]: The operational sound turns off.

[CLOCK SET] (Menu)
- Refer to P19.

MONITOR (P21):
- Fixed to [0] (standard).

POWER SAVE (P21):
- Fixed to [2MIN.].

Self-timer setting (P38):
- Fixed to 10 seconds.

Burst speed (P39):
• Fixed to low speed.

Number of recordable pictures in Burst mode (P39):

	Number of recordable pictures
ENLARGE	max. 3 pictures (DMC-LC70)/ max. 5 pictures (DMC-LC50)
4″×6″/10×15cm	max. 5 pictures
E-MAIL	max. 10 pictures

White balance setting (P51):
• Fixed to [AUTO].

ISO sensitivity setting (P53):
• Fixed to [AUTO].

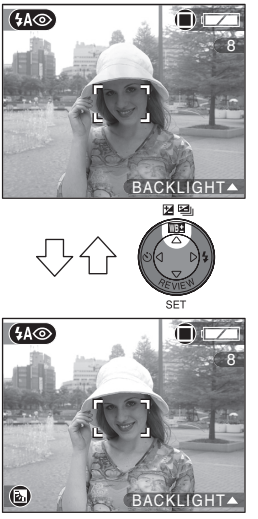
Picture size (P53) and quality (P54) in [PICT.MODE]

ENLARGE	2304×1728 pixels (DMC-LC70)/ 2048×1536 pixels (DMC-LC50)	Fine
4″×6″/ 10×15cm	1280×960 pixels	Fine
E-MAIL	640×480 pixels	Standard

AF trigger setting (P55):
• Fixed to [SHUTTER] (SHUTTER).

The Backlight Compensation in Simple Mode

Backlight is a situation where light comes from the back of subjects. The subjects such as people become dark when pictures are recorded in the backlight. If you press ▲, compensating backlight ON indication [ ] appears and the backlight compensation function is activated. This function compensates the brightness of the subject darkened by the backlight by brightening the whole of the screen.



• If you press ▲ while the backlight compensation indication is displayed, it disappears and the backlight compensation function is cancelled.

◇***Suggestions/Tips*** ◇

- The recordable range is 50 cm – ∞ (Tele), 10 cm – ∞ (Wide).
- If the distance between the camera and the object is beyond the recordable range, the focus may not be adjusted properly even the focus indication is lit.
- You cannot set the following items in the Simple mode [♥].
  - NO.RESET
  - RESET
  - USB MODE
  - VIDEO OUT
  - LANGUAGE
- However, the setting on [NO.RESET] and [LANGUAGE] in setup menu is reflected to the Simple mode.
- The settings on the Simple mode [♥] are not applied to other recording modes except [CLOCK SET] and [BEEP].
- You cannot use the following functions in the Simple mode [♥].
  - W.BALANCE
  - AUTO BRACKET
  - PICT.SIZE
  - QUALITY
  - SPOT MODE
  - AUDIO REC.
  - D.ZOOM
  - COL.EFFECT
  - PICT.ADJ.
  - FLIP ANIM.
- However, the setting on [PICT.SIZE] and [QUALITY] corresponds to the setting on [PICT.MODE].

Checking the Recorded Picture (Review)

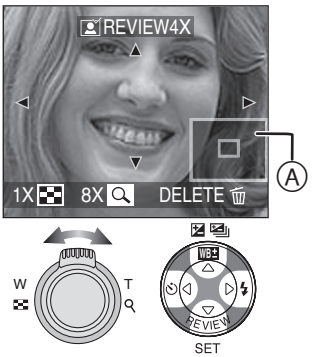
Preparation

• In Motion image mode [🎞], review function is not activated.

1 Press ▼.

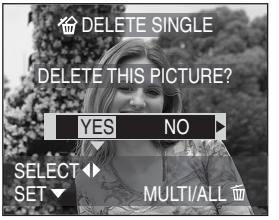
- The last recorded picture appears for about 10 seconds.
- Press the shutter button halfway or ▼ to cancel the review.
- You can check the previous or following picture with ◀/▶.
- When the recorded pictures are too bright or dim, compensate the exposure. (P36)

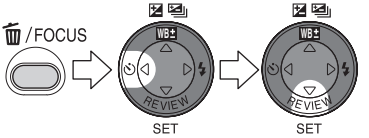
2 Enlarge and shift the picture.



- : 1×→4×→8×
- : 8×→4×→1×
- When you change the magnichange the magnification or the position to be displayed, the zoom position indication Ⓐ appears for about 1 second to check where is enlarged.

■ Deleting the recorded picture during the review





- Once deleted, pictures cannot be recovered.
- Multi pictures or all pictures can be deleted. Read P43 or P44 for details.

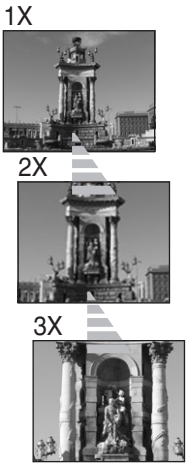
(The button illustrated is from the DMC-LC70.)

Using the Optical Zoom

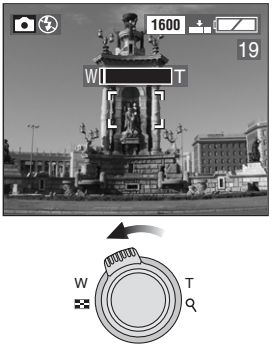
With this feature, you can make people and subjects appear closer with the 3 times optical zoom, and landscapes can be recorded in wide angle.

Preparation

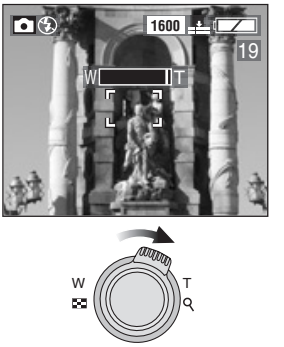
• Set the mode dial except for [▶]. (P8)



■ To make subjects appear further away (Wide)



■ To make subjects appear closer (Tele)



◇*Suggestions/Tips*◇

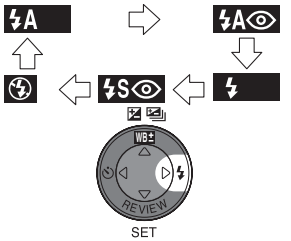
- The picture may be slightly distorted according to the lens. The distortion will increase as you make subjects wider and closer.
- When using the zoom lens at high magnification, the quality of the picture can be enhanced if a tripod is used. At high magnification, even small movements can cause a slight decrease in picture sharpness.

Taking Pictures using the Built-in Flash

Preparation

• Set the mode dial except for [▶]/[🎞]/[🏔]. (P8)

■ Switching the flash setting



ϟA : AUTO
The flash is automatically activated according to the recording condition.

ϟA👁 : AUTO/Red-eye reduction
The flash is automatically activated according to the recording condition.
It reduces the red-eye phenomenon (eyes of the subject appear red in photo flash) by lighting the flash at 1 second before actually recording the picture.
Use this when you take pictures of people in low lighting conditions.

ϟ : Forced ON
The flash is activated every time regardless of the recording condition.
Use this when your subject is back-lit or under fluorescent light.

ϟS👁 : Slow sync./Red-eye reduction
When you take a picture with a dark background landscape, it makes the shutter speed slow when the flash is activated, so that the dark background landscape will become bright. Simultaneously it reduces the red-eye phenomenon.
Use this when taking pictures of people in front of a dark background.

⊘ : Forced OFF
Even in dark places, the flash is not activated.
Use this when taking pictures in places where use of the flash is not allowed.

■ Available flash settings

	ϟA	ϟA👁	ϟ	ϟS👁	⊘
📷	○	○	○	○	○
Ⓔ	○	○	○	○	○
🌷	○	○	○	○	○
🏃	○	○	○	—	○
🏔	—	—	—	—	○
🌃	—	—	—	○	○
🎞	—	—	—	—	○
♥	—	○	○	—	○

■ The available flash range to take pictures

ISO sensitivity	Available flash range	
ISO50	Wide	30 cm – 1.6 m
	Tele	50 cm – 1 m
ISO100	Wide	30 cm – 2.4 m
	Tele	50 cm – 1.4 m
ISO200	Wide	30 cm – 3.3 m
	Tele	50 cm – 2 m
ISO400/ AUTO	Wide	30 cm – 4.8 m
	Tele	50 cm – 2.8 m

- The available flash range is an approximation.

■ Shutter speed for each flash mode

Flash mode	Shutter speed	
Flash ON	1/60th – 1/2000th (Except for Slow sync./ Red-eye reduction [ ])	
Flash OFF	ISO AUTO	1/8th – 1/2000th (Night portrait mode: 8 – 1/2000th)
	ISO 50/ 100/ 200/ 400	2 – 1/2000th (Night portrait mode: 8 – 1/2000th)

◇*Suggestions/Tips*◇

- In Landscape mode [ ]/Motion image mode [ ], flash setting is fixed to the Forced OFF [ ].
- When using the flash in ISO AUTO setting, the ISO sensitivity is automatically adjusted from ISO50 to 400. To avoid noises, decrease the ISO sensitivity.
- **Do not stare at the photo flash from close proximity when using the flash.**
- **If you bring the flash too close to the subjects, they may be distorted or discoloured by its heat and lighting.**
- **Do not cover the photo flash with your fingers or any other items.**
- If the subject is too close when using the flash, the picture may be over exposed.
- When the jitter alert appears, we recommend using the flash.
- When you set to burst mode or auto bracket, only 1 picture is recorded for every flash activated.
- The flash icon turns red when activating the flash and pressing the shutter button halfway.
- When the flash is being charged, the status indicator and the flash icon blink red, and you cannot take a picture even when you press the shutter button fully.
- If the battery indicator is less than [ ] or setting to the Economy mode [ ], the LCD monitor turns off during charging the flash.
- When taking a picture with the flash, the white balance will be automatically adjusted [except for [ ] (Daylight)], but the white balance may not be properly adjusted when the photo flash is insufficient.
- To avoid picture noises, we recommend setting [PICT.ADJ.] to [NATURAL]. (P58)
- Refer to P53 for the ISO sensitivity.

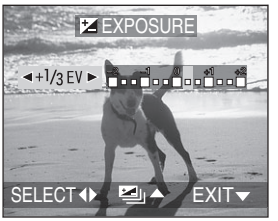
Compensating the Exposure

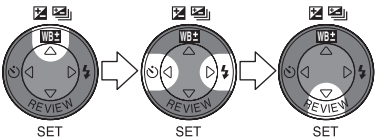
Use this function when you cannot achieve appropriate exposure due to the difference of brightness between the subject and the background.

Preparation

- Set the mode dial except for [▶]/[♥]. (P8)

1 Select [EXPOSURE] and compensate the exposure.





- You can compensate from −2 EV to +2 EV in steps of 1/3 EV.

◇***Suggestions/Tips*** ◇

- EV is an abbreviation of Exposure Value, and it is the amount of light given to the CCD by the aperture value and the shutter speed.
- The compensation range of the exposure will be limited depending on the brightness of the subject.
- The exposure compensation value appears.
- The exposure value is memorised even if the camera is turned off.

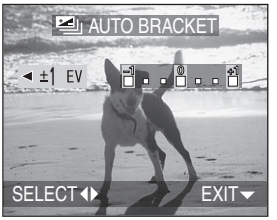
Taking Pictures using Auto Bracket

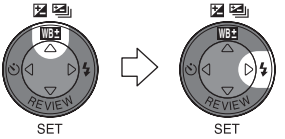
In this mode, 3 pictures are automatically recorded by each press of the shutter button according to the compensation range of the exposure.
You can select the desired exposure among the 3 types of pictures.

Preparation

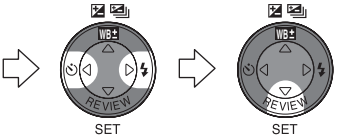
- Set the mode dial except for [▶]/[♥]/[🎞]. (P8)

1 Select [AUTO BRACKET] and set the compensation range of the exposure.





2 times



- You can select the exposure from 0 (OFF), ±1/3 EV, ±2/3 EV and ±1 EV.
- When you do not use auto bracket, select [OFF].

◇***Suggestions/Tips*** ◇

- When setting the auto bracket, the auto bracket icon appears on the lower left of the screen.
- Once you take a picture, auto bracket will be cancelled automatically.
- When taking pictures using auto bracket after the exposure compensation, the pictures are based on the compensated exposure.
  When the exposure is compensated, the compensated exposure value appears.
- When the flash is activated, you can take only 1 picture. Auto bracket setting cannot be cancelled.
- When setting auto bracket, you cannot take a picture with audio.
- When setting auto bracket and the burst mode simultaneously, auto bracket will be performed.
- The exposure may not be compensated with auto bracket depending on the brightness of the subject.

Taking Pictures with the Self-timer

Preparation

- Set the mode dial except for [▶]/[🎞]. (P8)

1 Switch the self-timer setting.

SET

: Self-timer set to 10 seconds

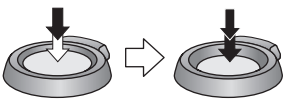
↓

: Self-timer set to 2 seconds

↓

No display (cancelled)

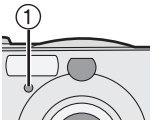
2 Focus on the subject to take the picture.



- If you press the [MENU] button when the self-timer is set, the self-timer setting is cancelled.

◇ ***Suggestions/Tips*** ◇

- When using a tripod or in other cases, setting the self-timer to 2 seconds is a convenient way to stabilize the jitter caused by pressing the shutter button.
- The self-timer indicator ① blinks and the shutter is activated after 10 seconds (or 2 seconds).



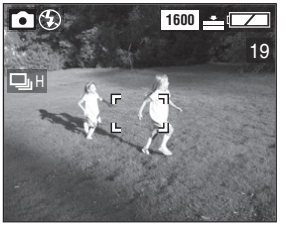
- When pressing the button fully with one stroke, the subject is automatically focused after the self-timer indicator turns off.
- In Simple mode [♥], the self-timer can only be set to 10 seconds.
- When setting the self-timer in the burst mode, you can take only 1 picture.
- We recommend using a tripod when setting the self-timer.

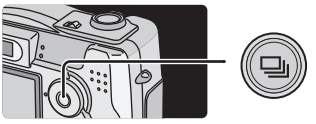
Taking Pictures using Burst Mode

Preparation

• Set the mode dial except for [▶]/[🎞]. (P8)

1 Switch the burst mode setting.





: High speed

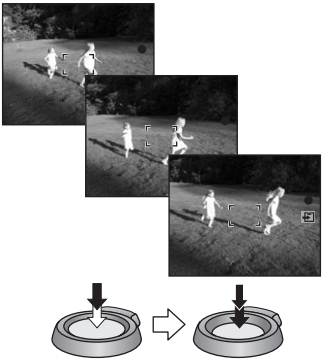
↓

: Low speed

↓

No display (cancelled)

2 Take pictures.



• Keep pressing the shutter button fully to activate the burst mode.

◇*Suggestions/Tips*◇

■ Number of pictures recorded in burst mode

	Burst speed (pictures/second)		Number of recordable pictures (pictures)	
	H	L		
DMC-LC70	3.3	2	max. 3 (*1) / max. 5	max. 5 (*1) / max. 10
DMC-LC50	3.5	2	max. 5	max. 8 (*2) / max. 10

*1 2304×1728 picture size

*2 2048×1536 picture size

• It is possible to record 4 pictures in 1 second in burst mode at a shutter speed higher than 1/60th.

• If the flash is activated, you can record only 1 picture.

• In Simple mode [♥], the burst speed is fixed to Low. (P29)

• You cannot take pictures with audio in the burst mode.

• When setting auto bracket and the burst mode simultaneously, auto bracket will be performed.

• Burst mode will not perform as described if a MultiMediaCard is used in place of an SD Memory Card. The reading/writing speed of a MultiMediaCard is slower than that of an SD Memory Card.

Playing Back Pictures

Preparation

- Set the mode dial to [▶]. (P8)

1 Select the picture.

SET

- Press ◄ to play back the previous picture.
- Press ► to play back the next picture.
- The picture following the last one is the first picture.

■ Fast forwarding/Fast rewinding

When you keep pressing ◄/► during playback, the file number and the page number are updated. If you release ◄/► when the number of the desired picture appears, you can play back the picture.

►: Fast forward
◄: Fast rewind

- The number of files forwarded/rewound at a time depends on how long you hold down ◄/►.
- The longer you hold down ◄/►, the more pictures you can forward/rewind at a time.
- The setting of the number of files forwarded/rewound at a time varies depending on the total number of the recorded pictures.
- When releasing ◄/►, the number of file forwarded begins from 1.
- While forwarding or rewinding a large number of pictures by holding down ◄/►, once release ◄/► before reaching the picture to be played back, then press ◄/► to forward/rewind pictures until the desired picture appears.
- In review playback in the recording mode or multi playback, the pictures can only be forwarded or rewound one by one.

◇*Suggestions/Tips*◇

- This camera is based on the DCF standards (Design rule for Camera File system) which were established by the Japan Electronics and Information Technology Industries Association (JEITA).
- When changing the folder name or file name on PC, the pictures may not be played back.
- The file format that can be played back with this camera is JPEG. (There are also pictures that cannot be played back in JPEG format.)
- When playing back pictures that have been recorded with other equipment, the picture quality may be deteriorated and pictures may not be played back.
- When playing back a file out of standard, the folder/file number is indicated by [—] and the screen may turn black.
- The interference fringe may appear on the screen depending on the subject. This is called moire. This is not a malfunction.

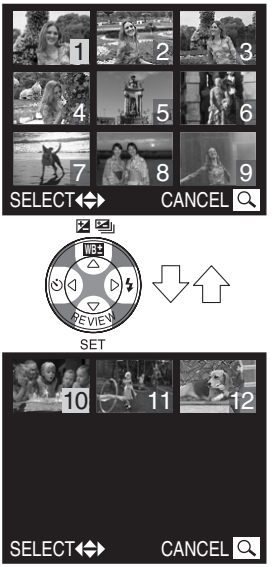
9 Pictures Multi Playback

Preparation

• Set the mode dial to [▶]. (P8)

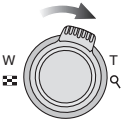
1 Switch to multi screen.

2 Select the pictures.



■ To return to the normal playback

Rotate the zoom lever towards [🔍].



• The picture with the number coloured in yellow appears.

■ To delete a picture during a 9 pictures multi playback.

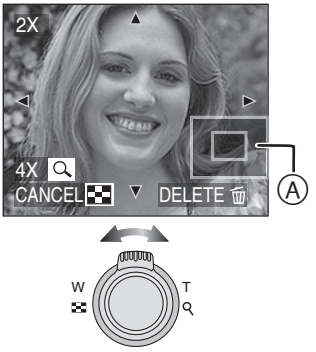
Press the [🗑] button.
When the confirmation screen appears, press ◄ to select [YES], and press ▼. (P43)

Using the Playback Zoom

Preparation

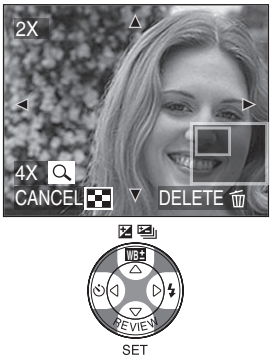
- Set the mode dial to [▶]. (P8)

1 Enlarge the picture.



- 🔍: 1×→2×→4×→8×→16×
- ▪: 16×→8×→4×→2×→1×
- The magnification reverts to [1×], when you press the [MENU] button.
- When you change the magnification, the zoom position indication Ⓐ appears for about 1 second to check where is enlarged.

2 Shift the picture.



■ To delete a picture during the playback zoom

Press the [🗑] button.
When the confirmation screen appears, press ◄ to select [YES], and press ▼. (P43)

◇*Suggestions/Tips*◇

- The more the picture is enlarged, the more its quality deteriorates.
- The playback zoom may not operate if pictures have been recorded with other equipment.
- Even if the LCD monitor is turned off in normal Playback mode (P23), the magnification and enabled operations appear on the LCD monitor when the Playback Zoom is activated.
  You can switch whether you turn the LCD monitor on or off by pressing the [DISPLAY] button.
  When you set the magnification to [1×], the LCD monitor is displayed as usual.

Deleting Pictures

Preparation

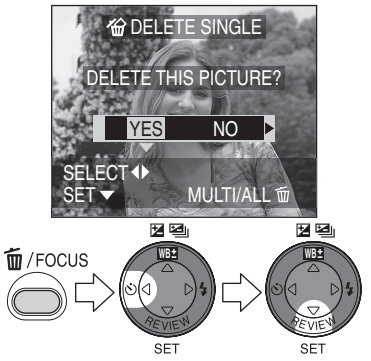
- Set the mode dial to [▶]. (P8)

■ To delete a single picture

1 Select the picture to be deleted.

- Press ◄ to play back the previous picture.
- Press ► to play back the next picture.

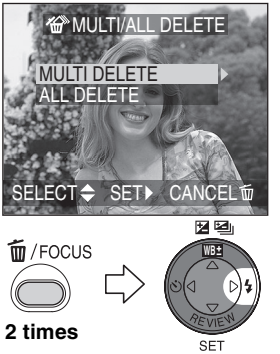
2 Delete the picture.



(The button illustrated is from the DMC-LC70.)

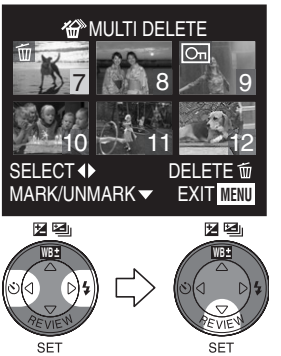
■ To delete multi pictures

1 Select [MULTI DELETE].



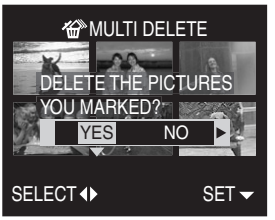
(The button illustrated is from the DMC-LC70.)

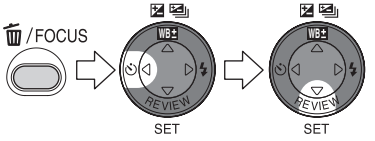
2 Select the pictures to be deleted.



- The selected pictures appear with [🗑]. When ▼ is pressed again, the setting is cancelled.
- The icon [⚿] blinks red if the selected picture cannot be deleted. Cancel the protect setting. (P69)

3 Delete the pictures.

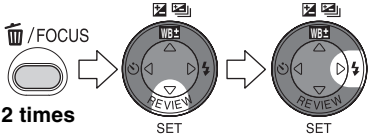




- It is possible to delete up to 50 pictures all at once.

■ To delete all pictures

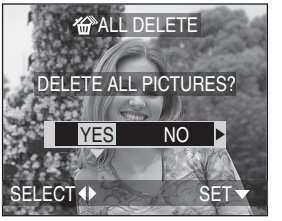
1 Select [ALL DELETE].

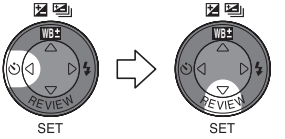


2 times

(The button illustrated is from the DMC-LC70.)

2 Delete all of the pictures.



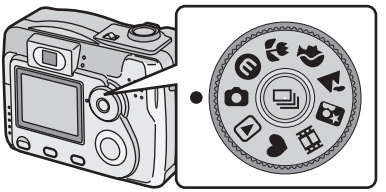


◇***Suggestions/Tips*** ◇

- Once deleted, pictures cannot be recovered. Please double-check before deleting pictures.
- Pictures that are protected (P69) or not of DCF standards (P40) are not deleted.
- Do not turn off the camera or remove the card while deleting.
- Use the batteries which the remaining power is enough (P13) or AC adaptor (optional, DMW-AC2).

Using the Mode Dial

Select the desired mode turning the mode dial.



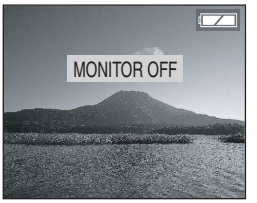
: Economy mode (P45)
: Macro mode (P46)
: Portrait mode (P47)
: Landscape mode (P47)
: Night portrait mode (P48)
: Motion image mode (P49)

■ Taking Pictures using Economy Mode

In Economy mode, the camera reduces the brightness of the LCD monitor and works as follows to reduce the battery power consumption.

Preparation

• Set the mode dial to [ ]. (P8)

Conditions	Operation
When 15 seconds passed without any operation. (When [ECONOMY] on the [SETUP] menu is set to [LEVEL1] or [LEVEL2].) (P20)	• The message [MONITOR OFF] blinks for 2 seconds.  • The LCD monitor turns off. **How to turn the LCD monitor on again** • Press any key.
When 5 seconds passed without any operation after taking a picture. (Effective only when [ECONOMY] on the [SETUP] menu is set to [LEVEL2].) (P20)	
When 2 minutes passed without any operation.	The camera is turned off. (Power save mode is activated.) **How to turn the camera on again** • Press the shutter button. • Turn the camera off and then turn it on again.

◇***Suggestions/Tips*** ◇

- The LCD monitor is also turned off when you charge the flash.
- The Economy mode is not activated while the menu screen is displayed or the self-timer is set.

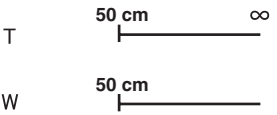
■ Taking Pictures using Macro Mode

This mode allows you to take pictures closely focusing on the subject. (e.g. When taking pictures of flowers.)
You can take pictures with the lens at a distance of 10 cm (Wide) from the subject.

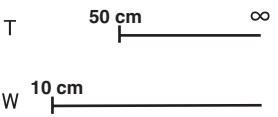
Preparation

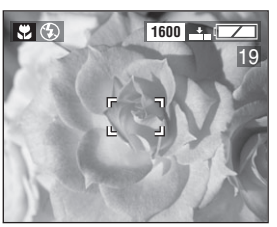
- Set the mode dial to [ ]. (P8)

- Normal



- Macro mode [ ]





◇***Suggestions/Tips*** ◇

- In Macro mode, we recommend using a tripod.
- When the camera lens is at a distance beyond the available range from the subject, the subject may not be focused even if the focus indication lights.
- In Macro mode, the captured range may differ from the visible range by the optical finder. Use the LCD monitor to take pictures.
- The available flash range is about 30 cm – 4.8 m (Wide), 50 cm – 2.8 m (Tele). (When setting to ISO400/ AUTO)

Taking Pictures using Portrait Mode

This mode allows you to make a subject stand out from an unfocused background and adjust the exposure and the hue.

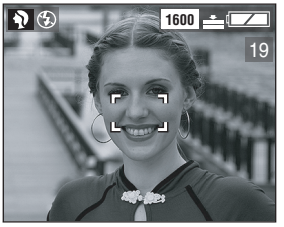
Preparation

• Set the mode dial to [ ]. (P8)

Technique for Portrait mode

To make this mode more effective:

1 Rotate the zoom lever to Tele as far as possible.
2 Be close to the subject.
3 Select a background which is far from the camera.



◇***Suggestions/Tips*** ◇

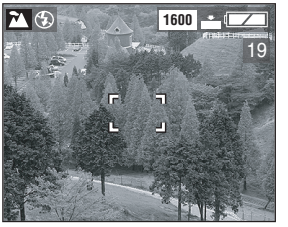
• This mode is suitable for outdoors in the daytime.
• [AUTO] setting in white balance works best when recording outdoors in the daytime. When using indoors, the hue may change.
• You can change the white balance setting. (P51)
• When you want to change the exposure or the hue, compensate the exposure (P36) or adjust the picture quality (P58).

Taking Pictures using Landscape Mode

In Landscape mode the camera is adjusted to produce the greatest depth of field. This mode works best outdoors under direct sunlight at distances exceeding 3 m.

Preparation

• Set the mode dial to [ ]. (P8)



◇***Suggestions/Tips*** ◇

• Flash is set to Forced OFF [ ].
• The focus is adjusted at a distance of 3 m – ∞.
• [AUTO] setting in white balance works best when recording outdoors in the daytime. When using indoors, the hue may change.
• You can change the white balance setting. (P51)

Taking Pictures using Night Portrait Mode

Night Portrait Mode allows you to take pictures against a nighttime landscape. By using the flash and a slow shutter speed, the picture will show the subject and the background brighter than they appear in real life.

Preparation

- Set the mode dial to [ ]. (P8)

Shutter speed in Night portrait mode

Flash mode	Shutter speed
	1 – 1/2000th
	8 – 1/2000th

Technique for Night portrait mode

- We recommend using a tripod since the shutter speed becomes slow in a dark setting (max. about 1 second).
- Keep the subject still for about 1 second after taking a picture.
- The subject should be positioned within the available flash range [50 cm – 4.8 m (Wide), 50 cm – 2.8 m (Tele)].(When setting to ISO400/ AUTO)
- We recommend rotating the zoom lever to Wide.
- The focus range is about 1 m – 3 m.

When taking picture of a landscape at night

- When flash is set to Forced OFF [ ], you can capture the night illumination scenery itself with slower shutter speed. (Max: about 8 seconds)
- The focus range is about 3 m – ∞.

◇***Suggestions/Tips*** ◇

- Flash setting is fixed to Slow sync./ Red-eye reduction [ ].
- The shutter may be kept closed (max. about 8 seconds) after taking a picture with slow shutter speed, but it is not a malfunction.
- When the flash is set to Forced OFF in Night Portrait mode and you record the subject except the night illumination scenery, the hue may change due to the [AUTO] setting in white balance.
- You can change the white balance setting. (P51)
- When you take pictures in dark places, noises may become visible. To avoid noises, we recommend setting [PICT.ADJ.] to [NATURAL]. (P58)
- When you record pictures in dark places, it may be difficult to focus on the subject. We recommend recording pictures in bright places with contrast using the AF/AE lock (P28).

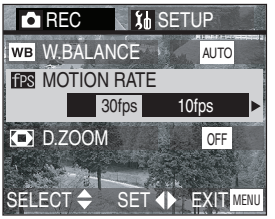
■ Recording Motion Images

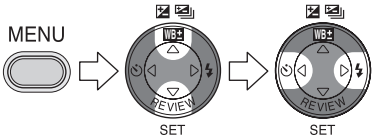
You can record motion images.

Preparation

- Set the mode dial to [🎞]. (P8)

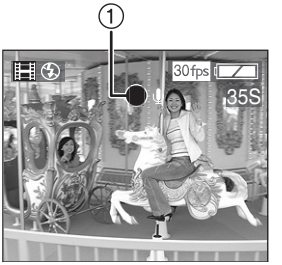
1 Select [MOTION RATE].





- [30fps]:
  The motion of recorded image is smooth, but the file size is large.
- [10fps]:
  The file size is smaller so you can record motion images for a longer time.
- fps (frame per second); This refers to the number of frames used in 1 second.
- Close the menu by pressing the [MENU] button after finishing the setting.

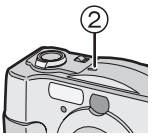
2 Press the shutter button halfway.



- When the subject is focused, the focus indication ① lights.

3 Press the shutter button fully to start the recording.

- The audio recording starts simultaneously from the built-in microphone ② of the camera (DMC-LC70 only).



- By pressing the shutter button fully again, the recording stops.
- If the memory card becomes full during recording, it stops automatically.

Available recording time (seconds)

SD Memory Card Capacity	Motion rate	
	10fps	30fps
16 MB	75	25
32 MB	160	55
64 MB	350	120
128 MB	720	240
256 MB	1450	480
512 MB	2950	1020

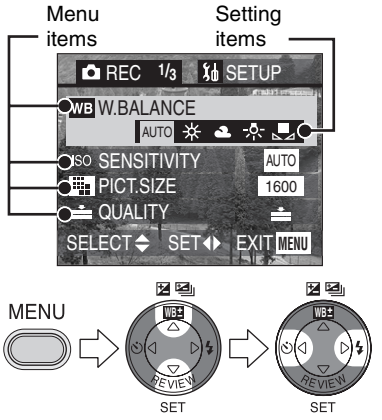
- The remaining recording time appears on the screen. (It is an approximation.)
- The recordable time is an approximation.

◇***Suggestions/Tips*** ◇

- Audio cannot be played back from this camera. Connect to the television (P79) or PC (P82) to play back audio.
- The picture size is fixed to 320×240 pixels.
- The motion images cannot be recorded without audio. (DMC-LC70 only)
- Audio cannot be recorded with DMC-LC50.
- If using the MultiMediaCard, after recording motion images, the status indicator and the card access indication may appear for a while, but this is not a malfunction.
- After recording starts, the auto focus/ zoom/aperture values are fixed (with the first frame).
- Recording could suddenly stop depending on the type of the card when recording motion images.
- When the motion images recorded with this camera are played back on other equipment, the quality of pictures and sounds may be deteriorated or they may not be played back.
- The motion images recorded with setting [MOTION RATE] to [30fps] cannot be played back on the camera which does not support [30fps] of motion rate.
- The review function cannot be used.

Using [REC] mode menu

Setting the hue, picture quality adjustment, etc. allows you to create wide variations on taking pictures.



- [W.BALANCE] (P51)
- [SENSITIVITY] (P53)
- [PICT.SIZE] (P53)
- [QUALITY] (P54)
- [SPOT MODE] (P54)
- [AUDIO REC.] (P55)
- [AF TRIGGER] (P55)
- [D.ZOOM] (P57)
- [COL.EFFECT] (P58)
- [PICT.ADJ.] (P58)
- [FLIP ANIM.] (P58)

Close the menu by pressing the [MENU] button after finishing the setting.

Setting the White Balance

In certain situations, the colour white may appear slightly reddish or bluish. By using the manual White Balance feature you can achieve a more accurate reproduction of the colour white.

Preparation

- Set the mode dial except for [▶]/[♥]. (P8)

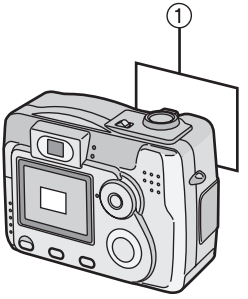
Setting items

- [AUTO]:
  for setting the white balance automatically (auto white balance)
- [☼] (Daylight):
  for recording outdoors on a bright day
- [☁] (Cloudy):
  for recording under a cloudy and shady sky
- [☼] (Halogen):
  for recording under halogen lighting
- [▣] (White set):
  for manual setting (Read the following page where the manual setting is explained in detail.)

- When setting the white balance to the mode except for [AUTO], you can finely adjust the white balance. (P52)

Setting the White Balance manually (White set)

If you want to set the white balance manually, select [ ] (White set) and press ►. Aim the camera at a sheet of white paper ① or similar object so that it completely fills the frame to white on the screen and press ▼.



Finely Adjusting the White Balance

If you cannot acquire the desired hue with white balance because of too many different light sources, etc., adjust the fine white balance as follows.

1 Set the white balance to [ ]/ [ ]/[ ]/[ ]. (P51)
2 Press ▲ until [WB± WB ADJUST.] appears.
3 Adjust the white balance.
- ► [BLUE]: Press when the hue is reddish.
- ◄ [RED]: Press when the hue is bluish.

4 Close the function by pressing ▼ after finishing the adjustment.

◇*Suggestions/Tips*◇

About the White Balance setting

- The setting of the white balance is applied to the other recording modes.
- In Simple mode [ ], the white balance is fixed to [AUTO].
- When taking a picture with the flash, the white balance will be automatically adjusted [except for [ ] (Daylight)], but the white balance may not be properly adjusted when the photo flash is insufficient.

About the fine adjustment of the White Balance

- The white balance icon turns red or blue.
- You can set the value independently for each of the modes in white balance.
- The setting of the fine white balance is applied to the recording with the flash.
- When you set the white balance using the White set [ ], the adjustment level is set to “0”.
- The adjusted picture will be close, though may not be identical to the actual picture.
- When setting the colour effect to [COOL], [WARM] or [B/W] (P58), you cannot adjust the fine white balance.

■ Setting ISO Sensitivity

The ISO setting sets the cameras sensitivity to light. The ISO setting can be increased when you need to take pictures in places where a flash may not be allowed. The overall picture quality will decrease slightly as the ISO setting is increased.

Preparation

Set the mode dial except for [▶]/[♥]/[🎞]. (P8)

Setting items

- When setting to [AUTO], the ISO sensitivity is automatically adjusted from ISO50 to ISO200 according to the brightness. (From ISO50 to ISO400 when using the flash)

ISO sensitivity	50 ⟷ 400	
Use in bright places (e.g. outdoors)	Suitable	Not suitable
Use in dark places	Not suitable	Suitable
Shutter speed	Slow	Fast
Noises	Less	Increase

- In Simple mode [♥]/Motion image mode [🎞], ISO sensitivity is fixed to [AUTO].
- To avoid noises, we recommend decreasing the ISO sensitivity or setting [PICT.ADJ.] to [NATURAL]. (P58)
- For the shutter speed, refer to P35.

■ Changing the Picture Size

The smaller the picture size you select, the more pictures you can store on the card. In addition, a small file size allows you to attach the picture to an e-mail or post it on a website more easily.
If you select a larger picture size, the printed picture will be clearer, especially with larger sized prints.

Preparation

Set the mode dial except for [▶]/[♥]/[🎞]. (P8)

Setting items

- [2304]: 2304×1728 pixels (DMC-LC70)
- [2048]: 2048×1536 pixels (DMC-LC50)
- [1600]: 1600×1200 pixels
- [1280]: 1280×960 pixels
- [640]: 640×480 pixels
- [HDTV]: 1920×1080 pixels

- If you playback pictures recorded using [HDTV] mode on a High-Definition TV, (HDTV has 16:9 aspect) the picture quality will be higher. An SD Memory Card can be played back on TVs with an SD Memory Card slot.

◇***Suggestions/Tips***◇

- In Motion image mode [🎞], the picture size is fixed to 320×240 pixels.
- It may happen that pictures appear like a mosaic depending on the subject or the recording condition.
- The number of recordable pictures depends on the subject.
- The number of remaining frames may not correspond with recorded frames.
- Refer to P94 for the number of recordable pictures.

■ Changing the Quality

"Quality" refers to the amount each image is compressed. Lower compression results in superior picture quality. Higher compression allows you to store more images on your SD Memory card.

Preparation

Set the mode dial except for [▶]/[♥]/[🎞]. (P8)

Setting items

- : Fine (Low compression)
  It gives priority to picture quality to record high quality pictures.
- : Standard (High compression)
  It gives priority to the number of recordable pictures and records standard quality pictures.

◇*Suggestions/Tips*◇

- It may happen that pictures appear like a mosaic depending on the subject or the recording condition.
- The number of recordable pictures depends on the subject.
- The number of remaining pictures may not correspond with recorded pictures.
- Refer to P94 for the number of recordable pictures.

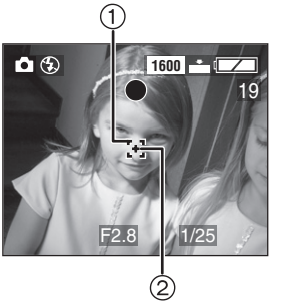
■ Taking Pictures using Spot Mode

When using Spot mode the size of the area used to calculate the focus and exposure is decreased. It is useful when you may be shooting through a group of people and want to designate where in the group the camera will calculate the exposure.

Preparation

Set the mode dial except for [▶]/[♥]/[🎞]. (P8)

Setting items



When selecting [SPOT MODE] and setting it to [ON], the spot AF area ⛶ ① and spot metering target + ② appear. Aim the spot AF area to the subject and press the shutter button halfway for the AF/AE lock.

- When the subject is dark, it may not be focused properly.
- Background may become dark or whitish depending on the subject because the exposure is set appropriately in the spot AF area.

■ Taking Pictures with Audio (DMC-LC70 Only)

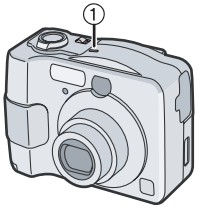
You can take a picture with audio.

Preparation

Set the mode dial except for [▶]/[♥]/[🎞]. (P8)

Setting items

- When selecting [AUDIO REC.] and setting it to [ON], 🎙 appear.
- 5 seconds after, the audio recording is stopped automatically.
- Audio is recorded from the built-in microphone ① of the camera.



- If you press the [MENU] button during the audio recording, it will be cancelled. The audio cannot be recorded.
- When setting to auto bracket/burst mode, it is not possible to take pictures with audio.

■ Using the AF Trigger (DMC-LC70 Only)

When taking a picture with prefocus, set the button for starting AF (Auto focus) to [FOCUS] on [AF TRIGGER].
Prefocus is a technique to focus on the point where the subject comes in advance, and it is used when taking a picture of the subject with quick motion. This function is suitable when the distance between the camera and the subject is certain.

Preparation

Set the mode dial except for [▶]/[♥]/[🎞]. (P8)

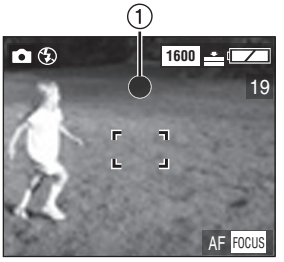
Setting items

- SHUTTER (SHUTTER):
  When you press the shutter button halfway, the Auto focus is activated.
- FOCUS:
  When you press the [FOCUS] button, the Auto focus is activated.

Procedure for recording with prefocus using [FOCUS] button

1 Aim the AF area to the point where you want to focus. (P25)

2 Press the [FOCUS] button.



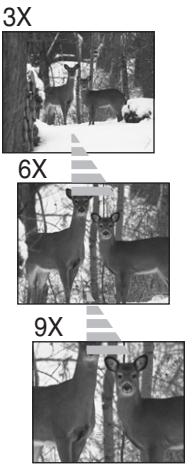
- When the subject is focused, the AF area turns from white to green and the focus indication ① lights up for 1 second. If the subject is out of the focus range, the focus indication will keep on blinking.
- Even when pressing the shutter button halfway, the focus will not be changed unless you press the [FOCUS] button again.
- When you press the shutter button halfway, [AF FOCUS] indication disappears and then the aperture value and the shutter speed are displayed.
- When you press the shutter button halfway without pressing the [FOCUS] button, the [AF FOCUS] indication turns to red.

3 When the subject is enclosed within the focused area, press the shutter button (take the picture).

- When taking pictures normally, set the AF Trigger to [SHUTTER]. When you need to focus on the subject before recording such as prefocus, set to [FOCUS]. After recording with prefocus is completed, set to [SHUTTER] on [AF TRIGGER] again.
- In Simple mode [♥]/Motion image mode [🎞], the AF Trigger is automatically set to [SHUTTER].

■ Using the Digital Zoom

It is possible to further magnify a subject already magnified 3 times with the optical zoom by 3 more times with the digital zoom, thereby reaching a maximum of 9 times.



Preparation

Set the mode dial except for [▶]/[♥]. (P8)

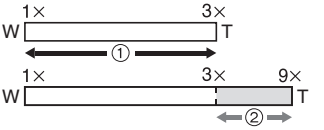
Setting items

When rotating the zoom lever with setting the [D.ZOOM] to [ON], the digital zoom indication appears.

Digital zoom ON

Entering the digital zoom range

When you rotate the zoom lever to the extreme Tele position the on screen zoom indication may momentarily pause. This is not a malfunction.
You can enter the digital zoom range to continuously rotate the zoom lever to Tele or to release the zoom lever once and then rotate it to Tele again.



① Optical zoom
② Digital zoom

◇*Suggestions/Tips*◇

- When using the digital zoom the picture quality becomes deteriorated.
- We recommend using a tripod in the digital zoom range.
- The digital zoom is cancelled when the LCD monitor is turned off.

■ Using the Colour Effect

You can use 3 types of colour effects depending on the image of the picture.

Preparation

Set the mode dial except for [▶]/[♥]/[🎞]. (P8)

Setting items

- [COOL]:
  The picture becomes bluish.
- [WARM]:
  The picture becomes reddish.
- [B/W]:
  The picture becomes black and white.

■ Adjusting the Quality of the Picture (Picture Adjustment)

Preparation

Set the mode dial except for [▶]/[♥]/[🎞]. (P8)

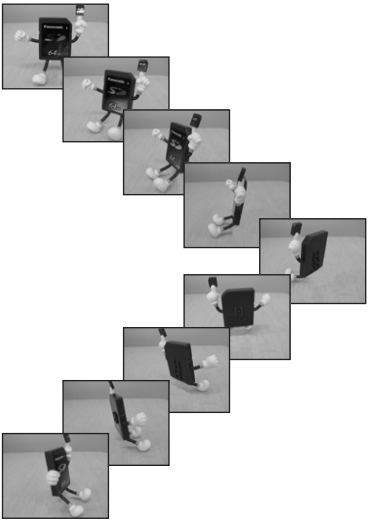
Setting items

- [NATURAL]:
  The picture quality becomes softer.
- [VIVID]:
  The picture quality becomes sharper.

- In Simple mode [♥]/Motion image mode [🎞], you cannot adjust the picture quality.
- When you take pictures in dark places, noises may become visible.
  To avoid noises, we recommend setting [PICT.ADJ.] to [NATURAL].

■ Creating Flip Animation (DMC-LC70 Only)

You can create motion image files by arranging pictures taken frame-by-frame.
Example:
When capturing images of the subject in sequence moving it little by little and aligning the images, the subject looks as if it were moving.

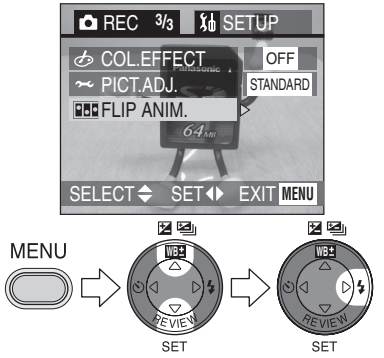


Preparation

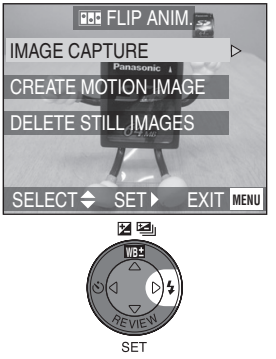
Set the mode dial except for [▶]/[♥]/[🎞]. (P8)

Capturing images

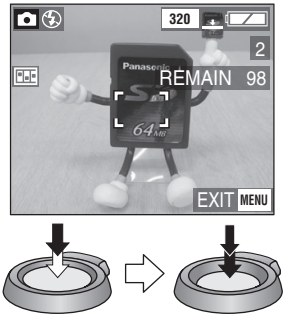
1 Select [FLIP ANIM.].



2 Select [IMAGE CAPTURE].

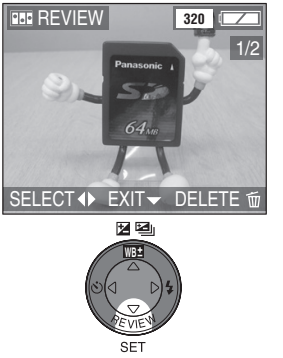


3 Capture images for flip animation.



- You can take up to 100 pictures.

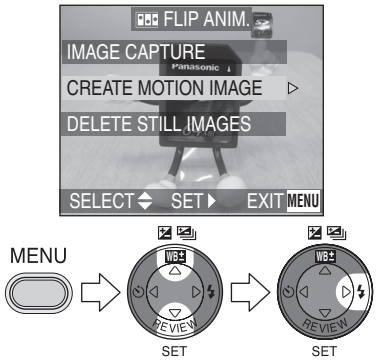
4 Check the image.



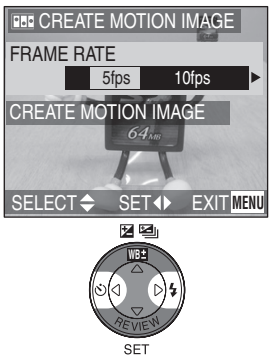
- You can check the previous or following image with ◄/►.
- Delete unnecessary images with [🗑] button.

Creating motion images

5 Select [CREATE MOTION IMAGE].

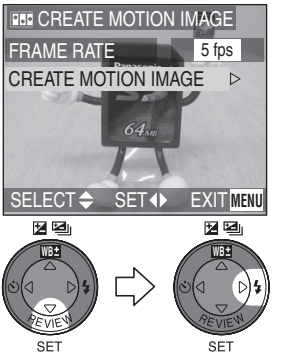


6 Select [FRAME RATE] and set the number of frames.



- [5fps]:
  5 frames/sec.
- [10fps]:
  10 frames/sec. (The motion images become smoother.)

7 Select [CREATE MOTION IMAGE] and create a flip animation.



- Including the created images, the flip animation is counted as 1 animation image.
- Close the menu by pressing the [MENU] button 3 times after finishing the setting.

Playing back a created flip animation

Follow the same procedure as you play back motion images. (P63)

Deleting all the still images used for flip animation

When selecting [DELETE STILL IMAGES] in flip animation screen, a confirmation screen appears. Select [YES] and then press ▼.

◇***Suggestions/Tips*** ◇

- Flip animations are created as motion image files.
- The number of pixel is 320×240.
- You cannot use pictures with audio, burst mode and auto bracket.
- The images in each frame do not appear in normal review. (P32)
- Flip animations may not be played back by other equipment.
- The flip animations recorded with setting [FRAME RATE] to [5fps] cannot be played back on the camera which does not support [5fps] of motion rate.
- Audio cannot be recorded on flip animations. However, you may hear noises when playing back with other equipment without a mute function.
- The number of recordable images is an approximation.

Playing Back Pictures with Audio (DMC-LC70 Only)

Preparation

• Set the mode dial to [▶]. (P8)

1 Select the picture with audio icon [♪].

SET

2 Play back the audio.

SET

◇***Suggestions/Tips*** ◇

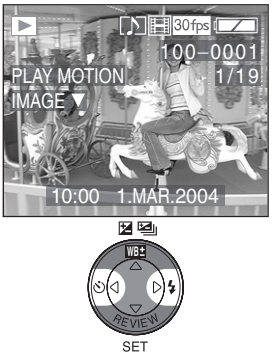
- **Audio cannot be played back from this camera. Connect to a television (P79) or PC (P82) to play back audio.**
- Audio cannot be played back with DMC-LC50.
- The picture with audio cannot be resized (P74) or trimmed. (P76)

Playing Back Motion Images

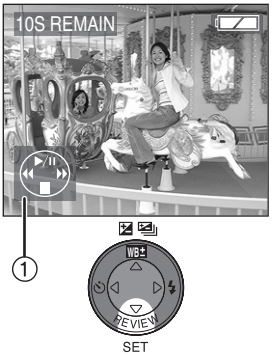
Preparation

- Set the mode dial to [▶]. (P8)

1 Select the picture with the motion image icon [ ].



2 Play back the motion images.



- Motion image playback stops and the normal playback is restored by pressing ▼.
- The icon ① is corresponding to the ▲/▼/◀/▶.

■ Fast forwarding/Fast rewinding

During motion image playback, continue pressing ◀/▶.

▶: Fast forward

◀: Fast rewind

- When releasing the button, it turns to normal motion image playback.

■ To pause

Press ▲ during motion image playback.

- Press ▲ again to cancel pause.

◇*Suggestions/Tips*◇

- **Audio cannot be played back from this camera. Connect to a television (P79) or PC (P82) to play back audio.**
- Audio cannot be played back with DMC-LC50.
- You cannot use the zoom function while playing back or pausing motion images.
- The file format that can be played back with this camera is QuickTime Motion JPEG.
- Some QuickTime Motion JPEG files recorded by a PC or other equipment may not be played back with this camera.
- When playing back motion images that have been recorded with other equipment, the quality of images may be deteriorated or the images may not be able to be played back.
- When using a high capacity card, it is possible that fast rewinding may be slower than usual.

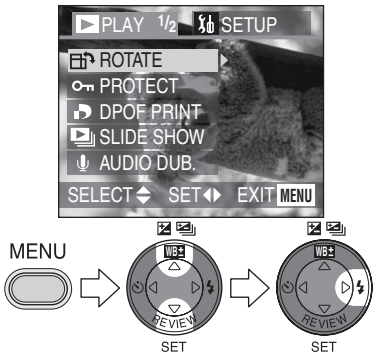
Rotating the Picture

You can rotate the recorded pictures in increments of 90°.
This is a convenient function to play back pictures on TV.

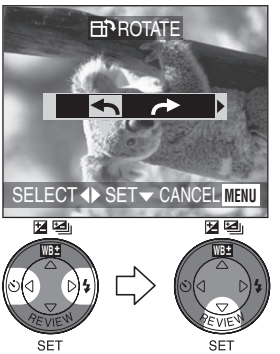
Preparation

- Set the mode dial to [▶]. (P8)

1 Select [ROTATE].



2 Select the direction to rotate the picture.



- [↶]: The picture rotates counterclockwise in increments of 90°.
- [↷]: The picture rotates clockwise in increments of 90°.
- Close the menu by pressing the [MENU] button after finishing the setting.

■ Example

When rotating clockwise (↷)

Original Picture

◇*Suggestions/Tips*◇

- Still pictures can only be rotated in normal playback. When playing back rotated pictures in zoom playback or multi playback, pictures appear in original angle.
- The recording date of the picture is changed to the date when you rotated the picture.
- Protected pictures cannot be rotated.
- Rotated pictures appear on a PC only when an OS or a software compatible with Exif is installed in the PC.
- Exif is the file format for still pictures, to which recording information and other can be added, established by JEITA [Japan Electronics and Information Technology Industries Association].

Setting the Picture to be Printed and the Number of Prints (DPOF Print Setting)

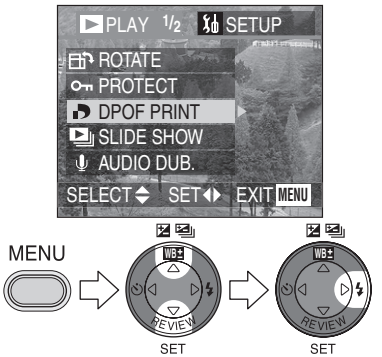
DPOF (Digital Print Order Format) is a system that allows the user to select which pictures are to be printed on compatible photo printers. DPOF also allows the user to set how many copies of each picture will be printed. Many commercial photo printing services now use DPOF.

Preparation

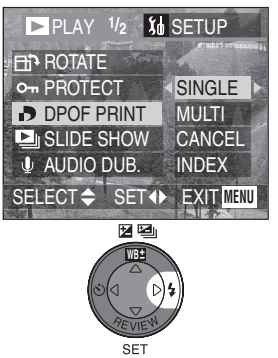
- Set the mode dial to [▶]. (P8)

■ Single setting

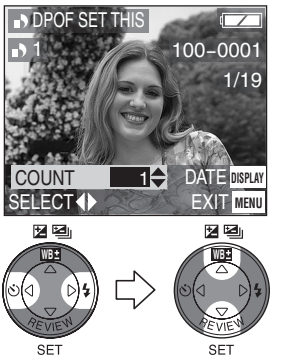
1 Select [DPOF PRINT].



2 Select [SINGLE].



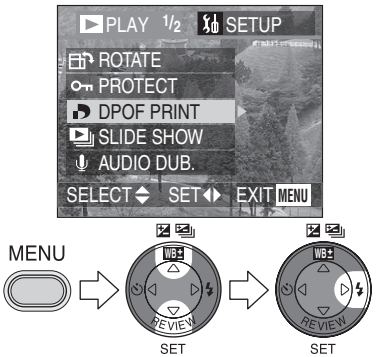
3 Select the picture and set the number of prints.



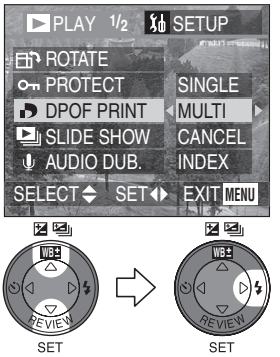
- The number of prints can be set from 0 to 999.
- The number of prints icon [1] appears.
- When the number of prints is set to “0”, DPOF print setting is cancelled.
- Close the menu by pressing the [MENU] button 2 times after finishing the setting.

■ Multi setting

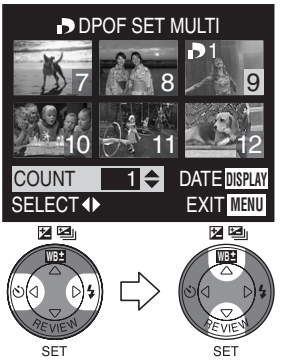
1 Select [DPOF PRINT].



2 Select [MULTI].



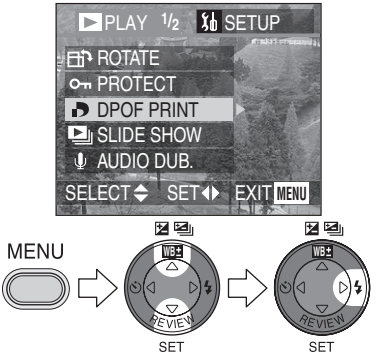
3 Select the pictures and set the number of prints.



- The number of prints can be set from 0 to 999.
- The number of prints icon [1] appears.
- Repeat step 3.
- When the number of prints is set to “0”, DPOF print setting is cancelled.
- Close the menu by pressing the [MENU] button 2 times after finishing the setting.

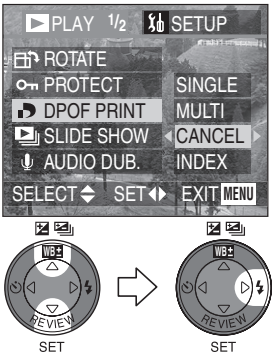
■ To cancel all settings

1 Select [DPOF PRINT].

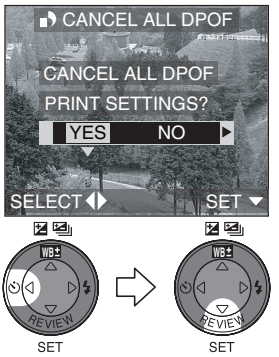


■ Index setting

2 Select [CANCEL].

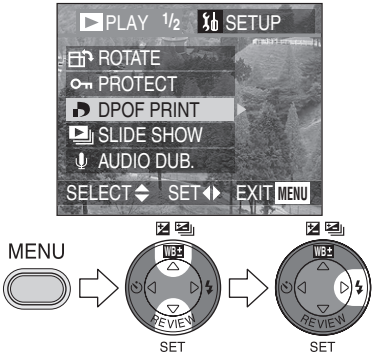


3 Select [YES] to cancel all settings.

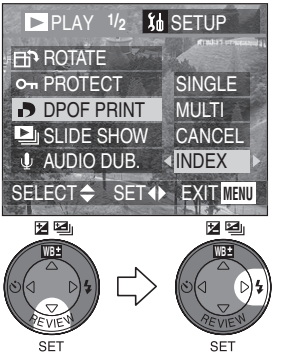


- Close the menu by pressing the [MENU] button after cancelling the setting.

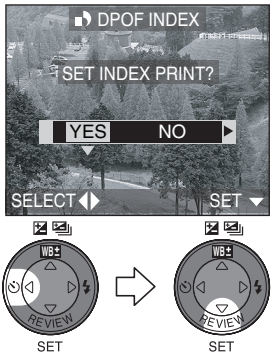
1 Select [DPOF PRINT].



2 Select [INDEX].

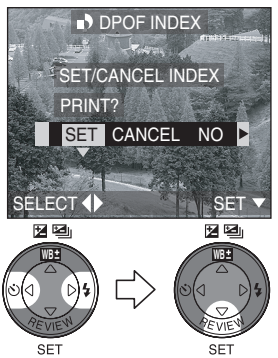


3 Select [YES] to index setting.



- Close the menu by pressing the [MENU] button after finishing the setting.

■ When the index is already set



- Close the menu by pressing the [MENU] button after finishing the setting.

■ To print the date

You can set/cancel the printing with the recorded date each press of the [DISPLAY] button when setting the number of prints.

- The date print icon [DATE] appears.
- When you go to a photo studio for printing, be sure to order the printing of the date. For further information, ask the photo studio. Depending on the studio, it may not be possible to print the date.

◇*Suggestions/Tips*◇

- DPOF print setting is a convenient function when you print pictures with printers supporting DPOF printing.
- DPOF is the abbreviation for Digital Print Order Format. This feature allows you to designate which pictures will be printed.
- The setting of DPOF print will not be applied to the DPOF setting of Slide Show.
- If the file is not based on the DCF standard, the DPOF print setting cannot be set. DCF is an abbreviation of [Design rule for Camera File system], stipulated by JEITA [Japan Electronics and Information Technology Industries Association].
- When setting the DPOF print on this camera, you need to cancel previous DPOF print settings by other equipment.

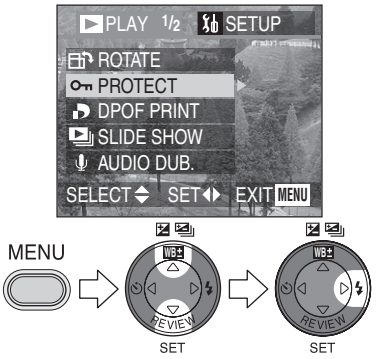
Preventing Accidental Erasure of the Picture

Preparation

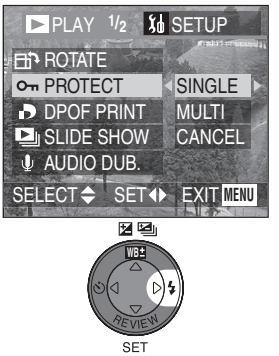
- Set the mode dial to [▶]. (P8)

■ Single setting

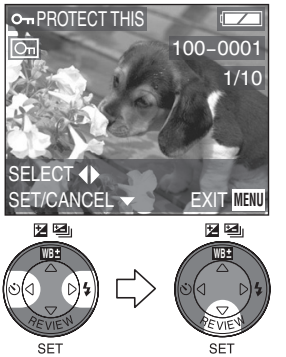
1 Select [PROTECT].



2 Select [SINGLE].



3 Select the picture and set/cancel the protection.



- [SET]:
  The protect icon [⊙n] appears.
- [CANCEL]:
  The protect icon [⊙n] disappears.
- Close the menu by pressing the [MENU] button 2 times after finishing the setting.

■ Multi setting/To cancel all settings

Perform the same operation as in [Setting the Picture to be Printed and the Number of Prints (DPOF Print Setting)]. (P65–66)

◇*Suggestions/Tips*◇

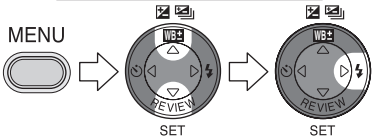
- While this feature protects the pictures from accidental erasure, formatting the card will permanently delete all data. (P78)
- If you want to delete protected pictures, cancel the protect setting first.
- The protect setting may not be effective in other equipment.
- Sliding the SD Memory Card Write-Protect switch to [LOCK] prevents the picture from deletion even if the protection is not set.
- The audio dubbing cannot be used with protected pictures. (P73)

Playing Back with Slide Show

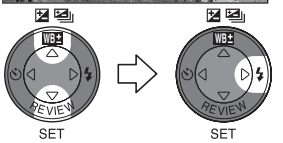
Preparation

- Set the mode dial to [▶]. (P8)

1 Select [SLIDE SHOW].

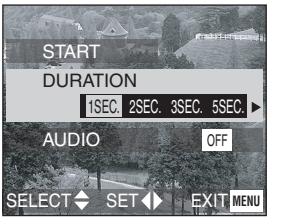


2 Select the type of pictures to play back.



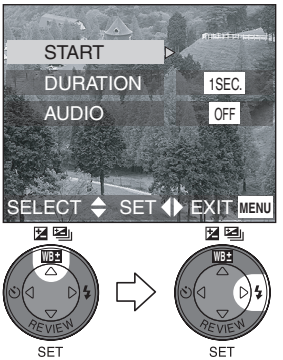
- [ALL]:
  for playing back all pictures
- [DPOF]:
  for playing back the pictures DPOF Slide Show is set

3 Select the following items.



- [DURATION]:
  It can be set among 1, 2, 3 and 5 seconds.
- [AUDIO] (DMC-LC70 only):
  By setting it to [ON], the audio of the pictures with audio can be played back during Slide Show.
- [DPOF SET] (Only when setting to [DPOF]):
  You can select the pictures you want to set to the Slide Show.
- [CANCEL ALL] (Only when setting to [DPOF]):
  You can cancel the DPOF Slide Show setting.

4 Select [START].



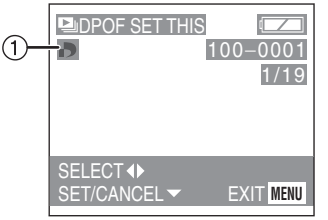
5 By pressing the [MENU] button, the Slide Show stops.

■ SD Slide Show

If setting the SD Slide Show with the [SD Viewer for DSC] which is in the supplied CD-ROM, when playing back, the confirmation screen appears. Select [YES] and press ▼ to start the SD Slide Show. Select [NO] and press ▼ to start normal playback.

◇*Suggestions/Tips*◇

- When setting the DPOF Slide Show, DPOF icon ① appears on the picture in green.
- When setting the DPOF Slide Show to the picture with DPOF printing, both the DPOF icon ① and the number of prints appear on the picture in green.
- When only the DPOF printing is set on the picture, the DPOF icon ① and the number of prints appear in white.



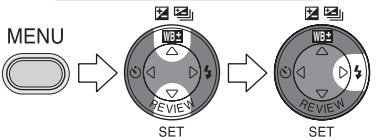
- In motion image playback, Slide Show is not available.
- The DPOF setting of Slide Show will not be applied to the DPOF printing.
- DPOF Slide Show cannot be performed without the DPOF setting of Slide Show.
- DPOF setting with the [SD Viewer for DSC] in the supplied CD-ROM is only for printing. Please set DPOF Slide Show with this camera to play back pictures in DPOF Slide Show.
- When setting the DPOF Slide Show on this camera, you need to cancel previous DPOF print settings by other equipment.
- Audio cannot be played back from this camera. Connect to a television to play back audio. (DMC-LC70 only) (P79)

Adding Audio to Recorded Pictures (Audio Dubbing) (DMC-LC70 Only)

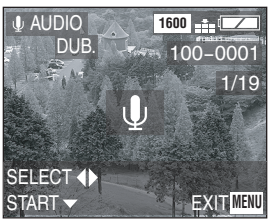
Preparation

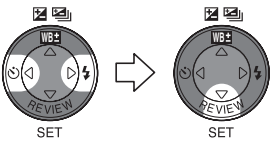
- Set the mode dial to [▶]. (P8)

1 Select [AUDIO DUB.].



2 Select the picture and start audio recording.





- When audio has already been recorded, the confirmation screen appears. Press ◄ to select [YES], and press ▼ to start audio recording. (The original audio is overwritten.)
- The audio dubbing cannot be used with motion images or protected pictures.

3 Stop audio recording.

- Even if you do not press ▼, after about 10 seconds the audio recording stops automatically.
- Close the menu by pressing the [MENU] button 2 times after finishing the setting.

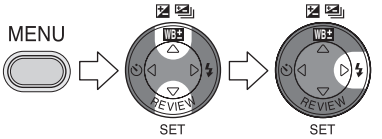
Resizing the Pictures

This function is useful if you want to reduce the file size of the picture in those cases when it needs to be attached to an e-mail or uploaded to a website.

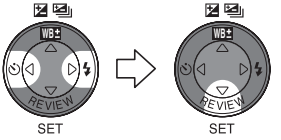
Preparation

- Set the mode dial to [▶]. (P8)

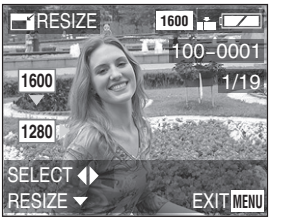
1 Select [RESIZE].

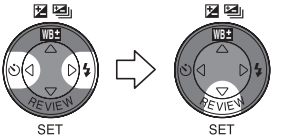


2 Select the picture and set it.



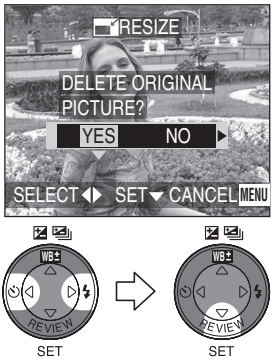
3 Select the size and set it.





- [1600]: 1600×1200 pixels
- [1280]: 1280×960 pixels
- [640]: 640×480 pixels

4 Select [YES] or [NO] and set it.



- When you select [YES], the picture is overwritten.
- When the original picture is protected, you cannot overwrite the resized picture.
- Close the menu by pressing the [MENU] button 2 times after finishing the resizing.

◇***Suggestions/Tips*** ◇

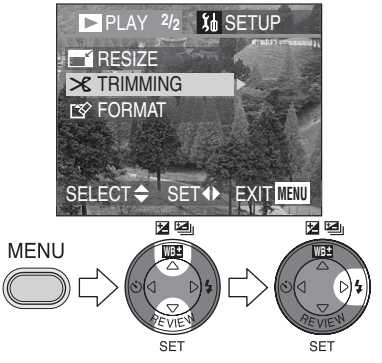
- The following pictures cannot be resized.
  - –Pictures not over 640×480 pixels
  - –Pictures recorded after setting the picture size to [HDTV]
  - –Motion images
  - –Flip animation (DMC-LC70 only)
  - –Pictures with audio (DMC-LC70 only)
  - –Rotated pictures (You can resize them if you turn them back.)
- It may not be possible to resize pictures recorded with other equipment.

Trimming the Pictures

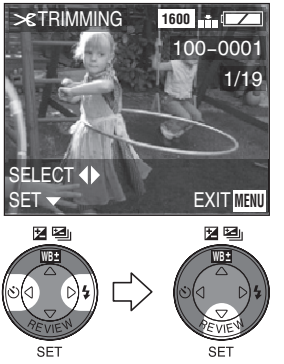
Preparation

• Set the mode dial to [▶]. (P8)

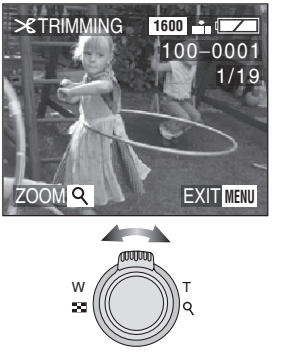
1 Select [TRIMMING].



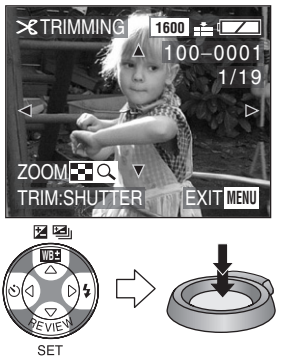
2 Select the picture to trim.



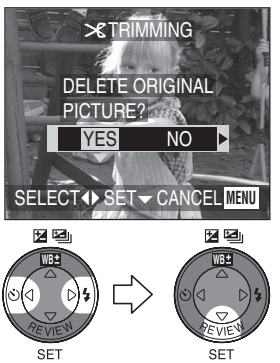
3 Enlarge or decrease the picture.



4 Shift the picture and press the shutter button fully to set.



5 Select [YES] or [NO] and set it.



- When you select [YES], the picture is overwritten.
- When the original picture is protected, you cannot overwrite the trimmed picture.
- Close the menu by pressing the [MENU] button 2 times after finishing the trimming.

◇*Suggestions/Tips*◇

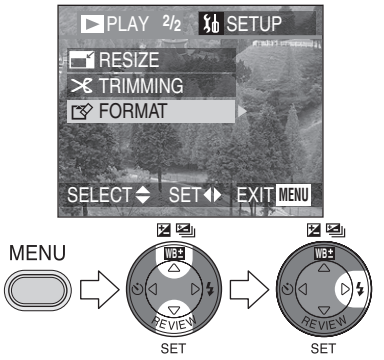
- The following pictures cannot be trimmed.
  - Pictures smaller than 640×480 pixels
  - Pictures recorded after setting the picture size to [HDTV]
  - Motion images
  - Flip animation (DMC-LC70 only)
  - Pictures with audio (DMC-LC70 only)
  - Rotated pictures (You can trim them if you rotate them back.)
- It may not be possible to trim pictures recorded with other equipment.
- The picture size of the trimmed pictures may become smaller than that of the original one depending on the cut size.
- The picture quality of the trimmed picture may be deteriorated.

Formatting the Card

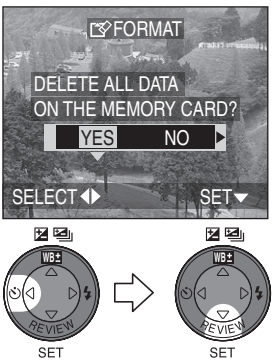
Preparation

- Set the mode dial to [▶]. (P8)

1 Select [FORMAT].



2 Select [YES] to format.



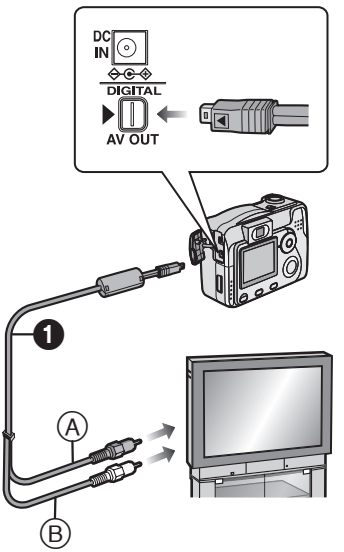
◇***Suggestions/Tips*** ◇

- Usually, it is not necessary to format the card (initializing). Format the card when the message [MEMORY CARD ERROR] appears.
- If the card has been formatted by a PC or other equipment, format the card on the camera again.
- After formatting, recorded pictures and any other data cannot be recovered.
- **If the card is formatted all images and data will be permanently erased. They cannot be reclaimed. If any important pictures are on the card, please copy them to your PC before proceeding.**
- During formatting, do not turn the camera off.
- Use sufficiently charged batteries (P13) or AC adaptor (optional, DMW-AC2).
- When the SD Memory Card Write-Protect switch is slid to [LOCK], you cannot format the card.
- If the card cannot be formatted, consult your nearest servicentre.

Playing Back Pictures with a TV Screen

■ Playing back pictures with AV cable (supplied with DMC-LC70) or video cable (supplied with DMC-LC50).

- Turn the camera and the TV off.
- DMC-LC70 is illustrated below as an example.



❶ AV cable (DMC-LC70)
Video cable (DMC-LC50)

1 Connect the AV cable (supplied with DMC-LC70) to the [AV OUT] socket of the camera (DMC-LC70). Connect the video cable (supplied with DMC-LC50) to the [V.OUT] socket of the camera (DMC-LC50).

- Align the ◄ mark on the AV cable (video cable) and the ► mark on the [AV OUT (V.OUT)] socket.

2 Connect the AV cable to the video input and the audio input sockets of the TV (DMC-LC70). Connect the video cable to video input socket of the TV (DMC-LC50).

- Ⓐ Yellow: to the video input socket
- Ⓑ White: to the audio input socket (DMC-LC70 only)

3 Turn the TV on and select external input.

4 Turn the camera on and then set the mode dial to playback mode [▶].

■ Viewing pictures in other countries

When setting [VIDEO OUT] on the menu, you can view pictures on a TV in other countries (regions) which use the NTSC or PAL system.

■ Playback pictures on TV with an SD Memory Card slot

An SD Memory Card can be played back on TVs with an SD Memory Card slot. If you play back pictures recorded using [HDTV] mode on a High-Definition TV, (HDTV has 16:9 aspect) the picture quality will be higher.

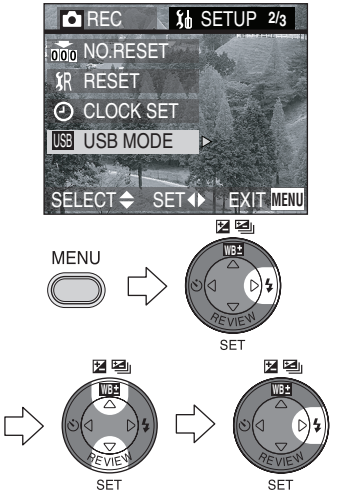
◇*Suggestions/Tips*◇

- Use the supplied AV cable or video cable.
- Only when the mode dial is set to Playback mode [▶], the image is displayed on the TV.
- Read the TV operating instructions too.

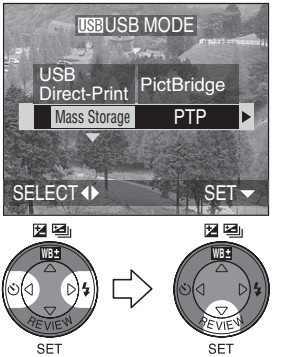
Before Connecting with USB Connection Cable

Select the USB communication system according to the OS of your PC or your printer before connecting them to the camera with the USB connection cable (supplied).
Set the items on [USB MODE] in the [SETUP] menu. (P22)

1 Select [USB MODE].
(In the recording mode)



2 Select [Mass Storage] or [PTP].



USB mode	PC to be connected	Printer to be connected
Mass Storage (USB Direct-Print)	Windows® XP Home Edition, Windows XP Professional, Windows 2000 Professional, Windows Me, Windows 98/98 SE or Mac OS X (10.1 or above), Mac OS 9.x	Printers supporting USB DIRECT-PRINT.
PTP (PictBridge)	Windows XP Home Edition, Windows XP Professional or Mac OS X	Printers supporting PictBridge.

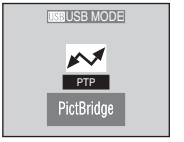
When using Windows 98/98 SE

When using Windows 98/98 SE, install the USB driver before connecting. (When using Windows Me/2000/XP, Mac OS 9.x and Mac OS X, you do not have to install the USB driver.)

When using Windows 2000 Professional, Windows Me, Windows 98/98 SE or Mac OS 9.x

The [PTP] (PictBridge) setting is not supported on the following OS's: Windows 2000 Professional, Windows Me, Windows 98/98 SE or Mac OS 9.x.
Please refer to the following information.

- When connecting the camera to a PC, do not set [USB MODE] to [PTP]. (When the camera is shipped, [Mass Storage] is selected.)
- When connecting to a PC which includes the above-mentioned OS and setting the [USB MODE] to [PTP], the messages shown on the right appear on the LCD monitor of the camera.



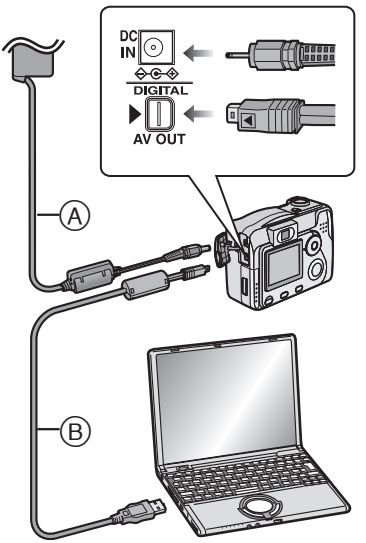
The following messages appear for each OS on the display of the PC. Select [Cancel] to close the window and disconnect the PC.

OS	Message
Windows 2000 Professional	[Welcome to the Found New Hardware Wizard]
Windows Me Windows 98/98 SE	[New Hardware Found]→ [Add New Hardware Wizard] (When you connect to the PC more than 2 times, only [Add New Hardware Wizard] appears.)
Mac OS 9.x	[Software needed for the USB device "DMC-LC70 or DMC-LC50" is not available. Would you like to look for the software on the Internet?]

Connecting to a PC

- If you use Windows 98/98SE, install the USB driver and then connect it to the computer.
- When using Windows Me/2000/XP, Mac OS 9.x and Mac OS X, you do not have to install the USB driver.

- DMC-LC70 is illustrated below as an example.



Ⓐ AC adaptor (optional, DMW-AC2)
Ⓑ USB connection cable

1 Turn the camera on and set the [USB MODE] according to the OS you use.

- Set to [PTP] or [Mass Storage]. Refer to “Before Connecting with USB Connection Cable” on page 80.
- Do not set to [PTP] if you use Windows 2000 Professional, Windows Me, Windows 98/98 SE, Mac OS 9.x. (P81)

2 Connect the camera to a PC via the USB connection cable (supplied).

- Align the ◄ mark on the USB connection cable and the ► mark on the [DIGITAL] socket.

Depending on the USB mode setting, the indications on the screen may vary. Read the page 83.

■ **Mass Storage**

[Windows]

The drive appears on the [My Computer] folder.

- If it is the first time you are connecting the camera to a PC, the required driver is installed automatically so that the camera can be recognized by the Windows Plug and Play, then it appears on the [My Computer] folder.

[Macintosh]

The drive is shown on the screen.

■ **PTP**

[Windows]

The camera icon appears on the [My Computer] folder.

- If it is the first time you are connecting the camera to a PC, the required driver is installed automatically so that the camera can be recognized by the Windows Plug and Play, then the camera icon appears on the [My Computer] folder.

[Macintosh]

You can read pictures with image capture or iPhoto.

◇***Suggestions/Tips*** ◇

- **If the remaining battery power becomes low during communication, the power indicator blinks and the alarm beeps. In this case, stop the communication, because the data may be destroyed. Then turn the camera off and use the following power source. (P13)**
  - **New batteries**
  - **Charged batteries**
  - **AC adaptor (optional, DMW-AC2)**
- Refer to P81 carefully when connecting to the OS except for Windows XP and Mac OS X with setting [USB MODE] to [PTP].
- The status indicator lights during communication.
- Use the supplied USB connection cable only.
- When connecting to a PC, we recommend using the AC adaptor (optional, DMW-AC2) as the power source.
- Refer to the supplementary operating instructions about connection with a PC for details.

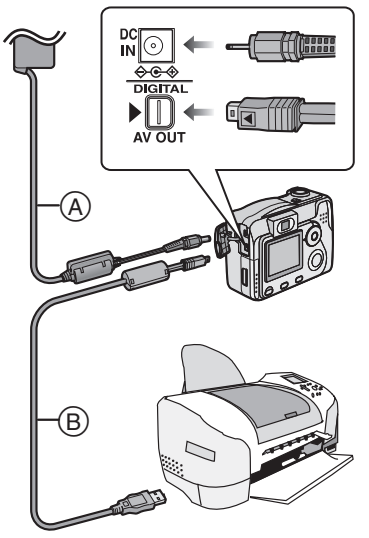
When setting PTP

- It may take time to display the communication screen depending on the PC.
- You can only load pictures from the camera and cannot write them on the card or delete them.
- When there are 1000 or more pictures on the card, the pictures may not be imported.
- When the PC recovers from the standby mode while connecting it to a camera with USB connection cables, they may not properly communicate with each other.

Connecting to a Printer

By connecting the camera directly to a printer supporting PictBridge or USB DIRECT-PRINT via the USB connection cable (supplied), you can select the pictures to be printed or start printing.

• DMC-LC70 is illustrated below as an example.



Ⓐ AC adaptor (optional, DMW-AC2)
Ⓑ USB connection cable

1 Turn the camera on, and the set the USB mode according to your printer. (P80)

Your printer	USB Mode
PictBridge	PTP
USB DIRECT-PRINT	Mass Storage

2 Turn on a printer.

3 Connect the camera to the printer via the USB connection cable (supplied).

• Align the ◄ mark on the USB connection cable and the ► mark on the [DIGITAL] socket.

When the DPOF Print is set. (P65)	Select [DPOF PICTURE]. (P86)
When the DPOF Print is not set.	Select [SINGLE PICTURE]. (P85)
When the printer does not support DPOF.	

◇***Suggestions/Tips*** ◇

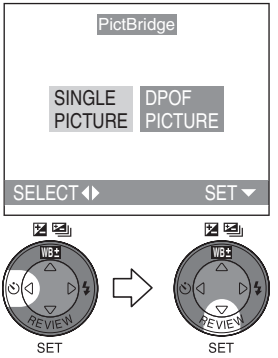
- **If the remaining battery power becomes low during communication, the power indicator blinks and the alarm beeps. In this case, stop the communication, because the data may be destroyed. Then turn the camera off and use the following power source.**
  - **New batteries**
  - **Charged batteries**
  - **AC adaptor (optional, DMW-AC2)**
- Ask the manufacturer of the printer about the corresponding models. (Read the printer operating instructions too.)
- It may take time to print pictures. When connecting, use the batteries that have sufficiently charged (P13), or use the AC adaptor (optional, DMW-AC2) as the power source.
- Disconnect the USB connection cable after printing.
- Use the supplied USB connection cable only.

Preparation

- Set the paper size and print quality with the printer in advance. (Read the printer operating instructions.)
- Connect the camera to a printer. (P84)

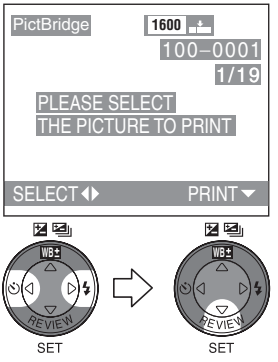
■ Single picture

1 Select [SINGLE PICTURE].

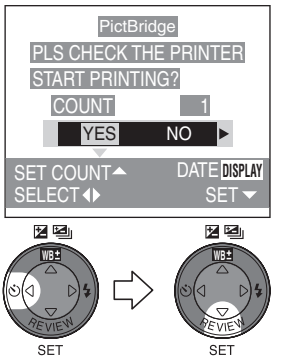


- The screen shown in step 2 appears when DPOF print is not set or the printer does not support DPOF print.
- When PTP is set, the screen shown above appears.

2 Select the picture to print.



3 Select [YES] and print.



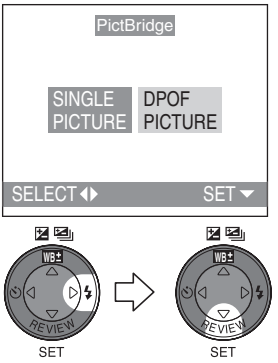
- Press ▲ and then press ◄/► to set the number of prints. Press ▼ to print pictures.
- Press the [MENU] button to cancel printing.
- Refer to P87 for the date printing.

Preparation

- Set the DPOF print with this camera in advance. (P65)
- Set the paper size and print quality with the printer. (Read the printer operating instructions.)
- Connect the camera to a printer. (P84)

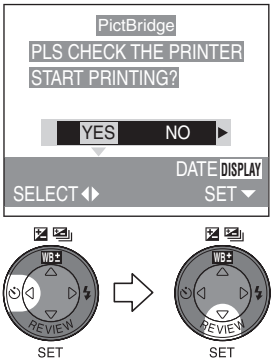
■ DPOF picture

1 Select [DPOF PICTURE].



- When printing under the new settings, disconnect the USB connection cable and connect it to the printer again.
- Press the [MENU] button, and you can change the DPOF print setting.(P65)

2 Select [YES] and print.



- Press the [MENU] button to cancel printing.
- Refer to 87 for the date printing.

◇*Suggestions/Tips*◇

- When the total number of pictures exceeds the following numbers, the number of remaining pictures does not appear on the screen.
  - PictBridge Print: 1000 or more
  - USB Direct-Print: 255 or more

When printing with PictBridge

- When connecting to a printer not supporting DPOF, DPOF printing cannot be set. (The DPOF print selecting screen does not appear.)
- Do not disconnect the USB connection cable when the cable disconnection warning icon [ ] is indicated.
- When the [●] indication lights in yellow during printing, check if there is a malfunction on the printer.

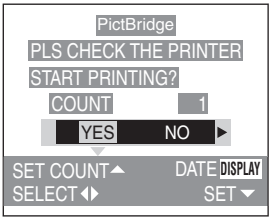
■ To print the date connecting to the printer

There are two ways.
① The one is to connect to the printer and then set the date printing.
② The other is to set the date printing with the DPOF print in advance.

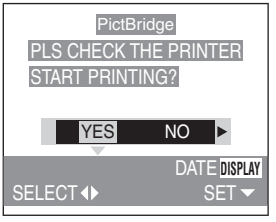
① Setting the date printing after connecting to the printer

- Before starting the print (when the screen shown below appears), press the [DISPLAY] button whether to set the date printing or not.

• Single picture



• DPOF picture



- Follow the procedure above in these cases:
  - When your printer does not support DPOF.
  - When your printer does not support the date printing on DPOF.
  - When the date printing is not set on the DPOF print.

② Setting the date printing with the DPOF print in advance

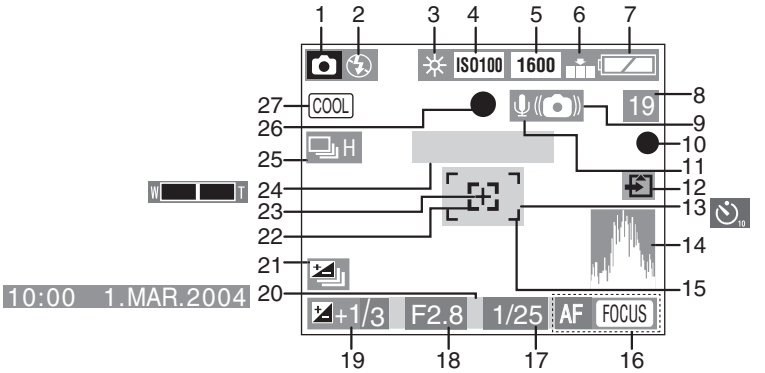
- Set the date printing with the DPOF print (P65) in advance. After selecting [DPOF] and starting the prints, the recorded date is printed. When you start printing, you do not need to press [DISPLAY] button.
- Follow the procedure above in these cases:
  - When your printer supports the date printing on the DPOF print.

◇*Suggestions/Tips*◇

■ About the date printing

- The setting on the printer may have priority over the setting on the camera in the date print. Also check the date print setting on the printer.
- Setting the date printing by [DISPLAY] button is available only when the printer supports the date printing.
- When you attempt to set the date printing by pressing the [DISPLAY] button and by setting the DPOF print at a time, it depends on the printer you use which date printing has a priority. (P65)

Screen Display



In recording

1 Recording mode (P8, 51)

2 Flash (P34)

3 White balance (P51)

4 ISO sensitivity (P53)

5 Picture size (P53)

6 Quality (data compression ratio) (P54)
10 fps / 30 fps (Motion rate):
In Motion image mode (P49)

7 Battery indication (P13)

8 Picture/Time remain
In Motion image mode: e.g. 11S

9 Jitter alert indication (P27)

10 Recording indication

11 Audio recording (DMC-LC70 only) (P55)

12 Card access indication (P17)

13 Self-timer (P38)

14 Histogram (DMC-LC70 only) (P24)

15 AF area (P25)

16 AF Trigger (DMC-LC70 only) (P55)

17 Shutter speed indication (P25)

18 Aperture indication (P25)

19 Exposure compensation (P36)

20 Current date and time (P19)
- This is displayed for about 5 seconds when turning the camera on, setting the clock and after switching from the Playback mode to the Recording mode.

21 Auto bracket (P37)

22 Spot AF area (P54)

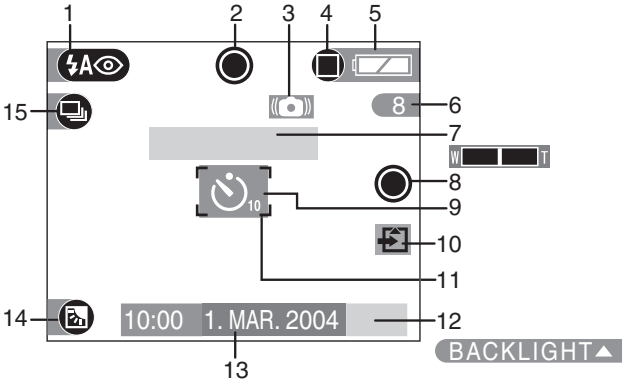
23 Spot metering target (P54)

24 Zoom (P33)
W T :
Digital zoom ON (P57)

25 Burst (P39)

26 Focus indication (P25)

27 Colour effect (P58)



■ Recording in Simple mode

1 Flash (P34)

2 Focus indication (P25)

3 Jitter alert indication (P27)

4 Picture mode (P29)

5 Battery indication (P13)

6 Picture remain

7 Zoom (P33)

8 Recording indication

9 Self-timer (P38)

10 Card access indication (P17)

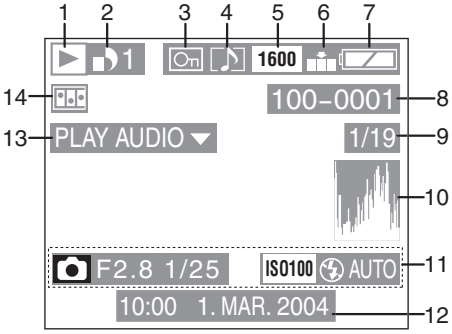
11 AF area (P25)

12 Backlight compensation indication (P30)

13 Current date and time (P19)
- This is displayed for about 5 seconds when turning the camera on, setting the clock and after switching from the Playback mode to the Simple mode.

14 Compensating backlight ON indication (P30)

15 Burst (P39)



■ In playback

1 Playback mode

2 DPOF (P65, 71)
1 (White):
DPOF setting for printing
1 (Green):
DPOF setting for Slide Show
1 (Green with number of prints):
DPOF setting for printing and Slide Show

3 Protected picture (P69)

4 Picture with audio (DMC-LC70) (P62)

5 Picture size (P53)
: In Motion image mode (P63)

6 Quality (data compression ratio) (P54)
5 fps / 10 fps / 30 fps :
In Motion image mode
In Simple mode:
: ENLARGE
: 4″×6″/10×15cm
: E-MAIL

7 Battery indication (P13)

8 Folder/File number

9 Page number/Total pictures

10 Histogram (DMC-LC70 only) (P24)
• It will be displayed when the [DISPLAY] button is pressed.

11 Recording information (P23) (Recording mode/Aperture indication/Shutter speed/ISO sensitivity/Flash/White balance)
• It will be displayed when the [DISPLAY] button is pressed.

12 Recorded date and time

13 Audio playback (DMC-LC70 only) (P62)
PLAY MOTION IMAGE ▼ :
In Motion image mode (P63)

14 Flip animation (DMC-LC70) (P58)

Cautions for Use

In the event of abnormal operation (e.g. if the unit emits smoke or an unusual smell), immediately stop operating the unit and consult the Panasonic Customer Care Centre on 132600.

■ Optimal Use of the Camera

Keep the camera away from magnetized equipment (such as a microwave oven, TV, video game equipment, etc.).

- If you use the camera on or near a TV, pictures and sounds may be disturbed due to electromagnetic wave radiation.
- Do not use the camera near a cell phone because doing so may cause noise to adversely affect the pictures and sounds.
- Recorded data may be damaged, or pictures may be distorted by strong magnetic fields created by speakers or large motors.
- Electromagnetic wave radiation generated by a microprocessor may adversely affect the camera, causing the disturbance of pictures and sounds.
- If the camera is affected by magnetically charged equipment and does not function properly, turn the camera off and remove the batteries or disconnect AC adaptor (optional, DMW-AC2) and then insert the batteries or connect AC adaptor (optional, DMW-AC2) again. Thereafter, turn the camera on.

Do not use the camera near radio transmitters or high-voltage lines.

- If you record near radio transmitters or high-voltage lines, recorded pictures or sounds may be adversely affected.

Do not spray insecticides or volatile chemicals onto the camera.

- If the camera is sprayed with such chemicals, the camera body may be damaged and the surface finish may peel off.
- Do not keep rubber or plastic products in contact with the camera for a long period of time.

When you use the camera on a rainy or snowy day or on a beach or similar place, do not let grit, fine dust or seawater get into the camera.

- Grit or dust may damage the camera or card. (Care should be taken when inserting and removing the card.)
- If seawater splashes onto the camera, wet a soft cloth with tap water, wring it well, and use it to wipe the camera body carefully. Then, wipe it again thoroughly with a soft, dry cloth.

When carrying this camera, take care not to drop or hit it.

- The outer case may be destroyed by the strong shock, and it may cause malfunction of this camera.
- For storing or transporting the camera, place it in a bag or case lined with soft pads to prevent the coating on the camera body from being worn.

Do not use benzine, thinner or alcohol for cleaning the camera.

- Before cleaning the camera, remove the batteries or disconnect the AC adaptor (optional, DMW-AC2) from the electrical outlet.
- The camera body may be deformed and the surface finish may peel off.
- Wipe the camera with a soft, dry cloth. To remove stubborn stains, wipe with a cloth that is soaked in a detergent diluted with water and afterward finish wiping with a dry cloth.

If you will not be using the camera for a long time,

- Do not keep the camera in a place where it will be subjected to high temperatures, high humidity or soot. Fungus may be attached to the lens or condensation may occur.
- Keep the camera in a cool, dry and well-ventilated place and avoid storing near dust or chemicals.
- We recommend keeping it in a closed case with the desiccant.

■ Condensation

When using the camera outdoors during very cold weather, condensation can form on the camera and lens when you return to a warm place.

When condensation has taken place: Turn the camera off and leave the camera in this condition for about 2 hours. When the camera becomes close to the ambient temperature, the condensation disappears naturally.

■ Optimal Use of the Batteries

The AA Ni-MH (nickel-metal hydride) batteries are rechargeable. The AA Alkaline batteries cannot be recharged.
Their abilities to generate power are based upon the chemical reaction that takes place inside them. This reaction is susceptible to the surrounding temperature and humidity, and, if the temperature is too high or too low, the operating time of the batteries will be shorter.

If you drop the batteries accidentally, check to see if the battery body and terminals are deformed.
Inserting deformed battery to the camera may damage the camera.

Be sure to remove the batteries after use.
If they are left inserted to the camera, a minute amount of current is consumed even when the camera is turned off. If the batteries are left inserted in the camera for a long time, discharge takes place. The batteries may become unusable even after they are charged.

Dispose of unusable batteries.

- The batteries have a limited life.
- Do not throw the batteries into fire because they may cause an explosion.

■ Cautions for Storage

Before storing the camera, remove the card and the batteries.
Store all the components in a dry place with a relatively stable temperature.
[Recommended temperature:
15°C to 25°C,
Recommended humidity: 40% to 60%]

Batteries

- Do not leave the camera and the batteries in a place where the temperature is too high, such as inside a car during the summer.
- Extremely high or low temperatures will shorten the life of the batteries.
- If the batteries are kept in smoky or dusty places, the terminals may rust and cause malfunctions.
- Do not allow the battery terminals to come in contact with metal objects (such as necklaces, hairpins, etc.). This can result in a short circuit or heat generation and, if you touch the battery in this condition, you may be badly burned.

- Store the batteries in a completely discharged state. To store the rechargeable batteries for a long period of time, we recommend charging them once every year and storing them again after you completely use up the charged capacity.

Card

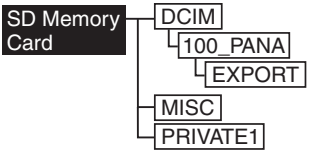
- Do not leave the card in places where there is high temperature or direct sunlight, or where electromagnetic waves or static electricity are easily generated.
- Do not bend or drop the card. The card or the recorded content may be damaged.
- After use, be sure to remove the card from the camera.
- Do not touch the terminals on the back of the card with your fingers. Do not allow dirt, dust or water to enter it.

■ LCD monitor

- In a place with drastic temperature changes, condensation may form on the LCD monitor. Wipe it with a soft, dry cloth.
- If the camera is extremely cold when you turn the camera on, the image on the LCD monitor is slightly darker than usual at first. However, as the internal temperature increases, it goes back to the normal brightness.

■ Folder Composition

When a Memory Card with data recorded on it is inserted into a PC, the folders shown below will appear.



- In the [100_PANA] folder it is possible to record up to 999 pictures.
- In the [MISC] folder it is possible to record the files that have been set with DPOF settings.
- The files recorded in flip animation function are stored in [PRIVATE1] folder (DMC-LC70 only).
- The motion images created by flip animation function are stored in [100_PANA] or another folder (DMC-LC70 only).

■ Printing pictures recorded with HDTV mode

When you print pictures recorded after setting the picture size to [HDTV] (1920×1080 pixels), both ends of the pictures may be cut out.

To print pictures with ends:

When you order photo studios to print pictures:

- Ask the photo studio if the pictures can be printed with both ends.

When you print pictures with your printer:

- When using the printer with a trimming feature or a feature which cuts out both edges of the pictures, cancel the feature for printing.
- The feature depends on the printer used. Refer to the operating instructions of the printer for details.

Approximate number of recordable pictures and the size

Picture size	2304×1728 (DMC-LC70)		2048×1536 (DMC-LC50)		1600×1200		1280×960	
Quality								
16 MB	8	16	10	20	17	34	22	43
32 MB	17	34	22	43	36	72	47	90
64 MB	35	70	45	88	74	149	96	184
128 MB	72	142	91	178	150	301	195	372
256 MB	144	283	181	354	300	600	390	743
512 MB	291	571	365	714	604	1209	785	1497

Picture size	640×480		1920×1080 (HDTV)	
Quality				
16 MB	69	129	17	34
32 MB	145	270	36	72
64 MB	298	553	74	149
128 MB	602	1118	150	301
256 MB	1200	2229	300	600
512 MB	2418	4491	604	1209

- If you mix fine quality and standard quality, the number of recordable pictures changes.
- The number of recordable pictures depends on the subject.

Message Display

[NO MEMORY CARD]
Insert the card.

[THIS MEMORY CARD IS PROTECTED]
Cancel the card lock.

[NO VALID IMAGE TO PLAY]
Play back after recording or after inserting a card with a recorded picture.

[MEMORY CARD FULL]/ [NOT ENOUGH MEMORY IN THE CARD]
Insert a new card or delete the unnecessary data.

[MODE DIAL IS NOT IN THE PROPER POSITION]
This message appears when you turn the camera on with the mode dial in the wrong position.
Rotate the mode dial to the proper position.

[PLEASE SET THE CLOCK]
This message appears when you use the camera for the first time or you do not use the camera for a long time.
Set the clock.

[PLEASE REPLACE THE BATTERIES]
Replace the batteries with new batteries or sufficiently charged batteries.

[THIS PICTURE IS PROTECTED]
After cancelling the protect setting, you can delete or overwrite the picture.

[THIS PICTURE CAN'T BE DELETED]/[SOME PICTURES CAN'T BE DELETED]
The pictures not based on the DCF standard cannot be deleted.

[CAN'T BE SET ON THIS PICTURE]/ [CAN'T BE SET ON SOME PICTURES]
If the pictures are not based on the DCF standard, the DPOF print cannot be set.

[NO ADDITIONAL DELETE SELECTIONS CAN BE MADE]
You have exceeded the number of pictures that can be set at once with multi-delete setting.

[MEMORY CARD ERROR FORMAT THIS CARD?]
The format of the card cannot be recognized by this camera. Format the card again with this camera.

[PLEASE TURN OFF AND ON THE CAMERA AGAIN]
This message appears when the camera does not operate properly. Turn the camera off and on. If the message persists, contact the dealer or your nearest servicentre.

[MEMORY CARD ERROR]
Failed access to the card.
Insert the card again.

[READ ERROR]
Data reading error.
Play it back again.

[WRITE ERROR]
Data writing error.
Turn the camera off and remove the card. Then insert the card and turn the camera on again. Be sure that the camera is turned off before removing or inserting the card to avoid damage.

Troubleshooting

1: The camera is not turned on.

1-1: Are the batteries inserted or the AC adaptor correctly connected? Check the connection.

1-2: Are the batteries sufficiently charged? Use sufficiently charged batteries (when using Ni-MH batteries). Replace them with new batteries (when using Alkaline batteries).

2: As the power is turned on, it turns off immediately.

2-1: Is the battery power sufficient to operate the camera? Charge the batteries (when using Ni-MH batteries). Replace them with new batteries (when using Alkaline batteries).

2-2: Are the batteries other than the recommended ones?

2-3: The remaining battery life of the Nickel Manganese battery cannot be correctly displayed because of its characteristics.

2-4: If you press the shutter button halfway without enough power remaining on the batteries, the camera may be turned off. This is a feature which helps to avoid abnormal recordings due to insufficient battery power, not a malfunction. Replace the batteries.

2-5: The Power Save is set before shipment. Therefore, the camera is turned off in 2 minutes if you do not operate it. This is not a malfunction. You can select it on the setup menu.

3: The brightness of the screen becomes dark or bright for a moment.

3: This phenomenon appears when pressing the shutter button halfway to set the aperture value and does not affect the recorded pictures.

4: The picture cannot be recorded.

4-1: Is the card inserted?

4-2: Is the mode dial correctly set? Check it.

4-3: There is no memory capacity left on the card. Before recording, delete some pictures.

5: The picture is not displayed on the LCD monitor. (The power indicator is lit.)

5-1: Is the LCD monitor set to OFF?

5-2: Does the economy mode work?

5-3: Is the built-in flash charging?

6: The LCD monitor is too bright or dark.

6: Adjust the brightness of the LCD monitor.

7: Flash does not light.

7: The flash mode is set to forced OFF. Change the flash mode.

8: The focus range depends on recording mode.

8-1: Set the mode dial to the mode corresponding to the distance to the subject.

8-2: Set the [AF TRIGGER] to [SHUTTER].

9: The picture is not played back.

9-1: Is the card inserted?

9-2: Is there a picture in the card?

9-3: Is the mode dial set to playback [▶]?

10: The picture does not appear on the television. The display may be distorted or may look colourless if you select the incorrect video out setting.

10-1: Is the camera connected to the TV correctly? Check it.

10-2: Set the TV to video input mode.

10-3: Check and confirm that the video out setting is selected on the set up menu as below depending on the country of use.
- NTSC: In Japan and America
- PAL: In Europe

11: When connecting to a PC, pictures cannot be transferred.

11-1: Is the camera connected to the PC correctly? Check it.

11-2: Is the camera recognized by the PC correctly?

11-3: Is the USB mode set correctly?

12: The clock setting is reset.

12-1: If you do not use the camera for a long time, the clock setting may be reset. When the message [PLEASE SET THE CLOCK] appears, set the clock again.

12-2: When you take a picture before setting the clock, [0:00 0. 0. 0] is recorded.

13: When you rotate the zoom lever from T to W, and then release it, the picture may appear closer for a moment again and the camera may vibrate.

13: This is the operation for keeping the focus accuracy, not a malfunction.

14: Some pixels are inactive or always lit on the LCD monitor.

14: This is not a malfunction. These pixels do not affect the recorded pictures.

15: Noise appears on the LCD monitor.

15: In dark places, noise may appear to maintain the brightness of the LCD monitor. This does not affect the pictures you are recording.

16: A vertical red spectrum appears on the LCD monitor.

16: This is called smear. It is specific to CCD, not a malfunction. It is recorded on motion images, but not recorded on still pictures.

17: The pictures cannot be printed with printers supporting USB DIRECT-PRINT or PictBridge.

17: Is the USB mode set correctly?

18: Both ends of the picture recorded by setting the picture size to [HDTV] (1920×1080 pixels) are cut out.

18-1: When you order photo studios to print pictures, ask the photo studio if the pictures can be printed with both ends.

18-2: When using the printer with a trimming feature or other feature which cuts out both edges of the pictures, cancel the feature for printing. The feature depends on the printer used.
Refer to the operating instructions of the printer for details.

Operational difficulties may be improved by restoring the initial settings on the [SETUP] menu. Select [RESET] on the SETUP menu and reset the Setup parameters.

Specifications

Digital Camera Information for your safety

Power Source:	DC 3 V
Power Consumption:	1.6 W (When recording with LCD Monitor to on) 0.45 W (When recording with LCD Monitor to off) 0.8 W (When playing back with LCD monitor)
Camera Effective pixels	4,000,000 pixels (DMC-LC70) 3,200,000 pixels (DMC-LC50)
Image sensor	1/2.5 inch CCD Total pixel number 4,230,000 pixels (DMC-LC70) Total pixel number 3,340,000 pixels (DMC-LC50) Primary colour filter
Lens	Optical 3× zoom, f=5.8 – 17.4 mm (35 mm film camera equivalent: 35 – 105 mm)/F2.8 – 4.9
Digital zoom	Max. 3×
Focus	TTL Auto/Macro/Spot AF (Spot mode)
Focus range	50 cm – ∞, Macro/Simple mode: 10 cm (Wide)/50 cm (Tele) – ∞
Shutter system	Electronic shutter+Mechanical shutter
Burst recording	(DMC-LC70) 3.3 pictures/second (high speed), 2 pictures/second (low speed) Max. 5 pictures (standard)/Max. 3 pictures (fine) for 2304×1728 pixels (DMC-LC50) 3.5 pictures/second (high speed), 2 pictures/second (low speed) Max. 8 pictures (standard)/Max. 5 pictures (fine) for 2048×1536 pixels (Performance is only with SD Memory Card. MultiMediaCard performance will be less.)
Motion image recording	320×240 pixels (30 or 10 frames/second with audio. The maximum recording time depends on the capacity of the card.) (Motion images are recorded with audio in DMC-LC70. In DMC-LC50, audio is not recorded.)
ISO sensitivity	AUTO (without flash: from ISO50 to 200/ with flash: from ISO50 to 400)/50/100/200/400
Shutter speed	8 – 1/2,000th Motion image mode: 1/30th – 1/2,000th
White balance	AUTO/Daylight/Cloudy/Halogen/White set
Exposure (AE)	Programme AE Exposure compensation (1/3 EV Step, −2 – +2 EV)
Metering mode	Multi/Spot (Spot mode)
LCD monitor	1.5 inch low-temperature polycrystalline TFT LCD (114,000 pixels) (field of view ratio about 100%)
Optical finder	Real-image zoom finder
Flash	Flash range: (ISO400/AUTO) Approx. 30 cm – 4.8 m (Wide)/ Approx. 50 cm – 2.8 m (Tele)

	AUTO, AUTO/Red-eye reduction, Forced ON, Slow sync./Red-eye reduction, Forced OFF
Microphone	Monaural (DMC-LC70 only)
Recording media	SD Memory Card/MultiMediaCard
Picture size	(DMC-LC70) 2304×1728 pixels, 1600×1200 pixels, 1280×960 pixels, 640×480 pixels, 1920×1080 pixels (Still picture) (DMC-LC50) 2048×1536 pixels, 1600×1200 pixels, 1280×960 pixels, 640×480 pixels, 1920×1080 pixels (Still picture) (DMC-LC70/DMC-LC50) 320×240 pixels (Motion image)
Quality	Fine/Standard
Recording file format	
Still Picture	JPEG (Design rule for Camera File system, based on Exif 2.2 standard), DPOF corresponding
Picture with audio	JPEG (Design rule for Camera File system, based on Exif 2.2 standard)+640×480 pixels QuickTime (picture with audio) (DMC-LC70 only)
Motion images	QuickTime Motion JPEG (motion images with audio) (Motion images are recorded with audio in DMC-LC70. In DMC-LC50, audio is not recorded.)
Interface	
Digital	USB
Analogue video/audio	NTSC/PAL Composite/Audio line output (monaural)
Terminal	
DIGITAL/AV OUT	Dedicated jack (8 pin)
DC IN (DMC-LC70)	Type 1 jack
DIGITAL/V.OUT	Dedicated jack (8 pin)
DC IN (DMC-LC50)	Type 1 jack
Dimensions (W×H×D)	87.5×64.1×35.3 mm (excluding the projection part)
Weight	Approx. 162 g (excluding Memory Card and batteries) Approx. 207 g (with Memory Card and batteries) (DMC-LC70) Approx. 159 g (excluding Memory Card and batteries) Approx. 204 g (with Memory Card and batteries) (DMC-LC50)
Operating Temperature	0°C – 40°C
Operating Humidity	10% – 80%
Power source	AA Ni-MH (nickel-metal hydride) batteries (2 pieces) (supplied) AA Alkaline batteries (2 pieces) (optional) AC adaptor (DMW-AC2) (optional)

Charger (Panasonic DE-894) Information for your safety

Input	110 – 240 V ~ 50/60 Hz, 0.07 A
Output	1.5 V ⎓ 0.4 A×2

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